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THE

CANADIAN AGRICULTURIST,

AND

JOURNAL OF TRANSACTIONS

OF THE

Board of Agriculture, Agricultural Associations,

&c. &c. &c.

PUBLISHED MONTHLY,

AND DEVOTED TO

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AND DOMESTIC ECONOMY.

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WILLIAM McDOUGALL, EDITOR AND PROPRIETOR.

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THE

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NEW ARRANGEMENTS FOR 1856.

Arrangements have been completed by which the subscribers have become the publishers of the *Canadian Agriculturist*. They desire to aid in promoting the Agricultural prosperity and material advancement of their country, and they believe no better means can be employed than to place in every farmer's home, a good agricultural paper, filled with useful suggestions, the results of the experience of others, and plain expositions of those sciences which relate more especially to agriculture. With this object in view, the publishers intend, by employing the best talent, by copious illustrations, and by superior typographical workmanship, to make the *Agriculturist* an acceptable companion to the farmer, and an instructive and welcome visitor to his family.

They feel confident that with the means at their disposal, they can make the *Agriculturist* worthy of general support, and they respectfully solicit the aid of enterprizing farmers in every township, to extend its circulation and usefulness. Agricultural Societies will find this Journal much more suitable for distribution among their members, than foreign publications, which must necessarily be uninformed in regard to the peculiarities of Canadian Agriculture, and devoted entirely to the advancement of their own county.

The editorial department will be under the supervision of the proprietor of the journal, as heretofore, assisted by special contributors of acknowledged skill and experience. Efforts are being made to extend the list of *practical* correspondents, already comprising some of the first agriculturists in the province, and no reasonable effort will be spared to make the *Agriculturist* second to no other paper of its class. We beg to refer the reader to the advertisement on the last page for particulars as to terms, &c.

WIMAN & Co.,
Publishers.

Toronto, Jan., 1st 1856.

Our readers will learn from the announcement in the preceding article, that some changes have been made in the publishing department of this Journal. The Proprietor removed last spring to a farm, a few miles from the city, and has found it exceedingly difficult to procure the publication of the paper at the proper time, and in a proper manner. Printers, like other people, are apt to neglect those who are not at hand to push them up, and they are never in want of excuses to account for delays and inferior work. To remedy this difficulty, and to relieve ourself of much labour and anxiety, we have arranged with Messrs. Wiman & Co. to become the Publishers of the *Agriculturist* for the present year, and probably longer. They will have the *business* department entirely in their hands, and all communications, orders, &c., not relating to the editorial department, should be addressed to them.

The writer will thus be enabled to give his whole attention to the preparation and selection of matter for its pages, and with the assistance of able contributors he hopes to make the Volume for 1856 superior to any of its predecessors. The terms will remain substantially as announced in the last number for 1855, except that, to *single* subscribers the price will be 3s. 9d. The Publishers intend to establish an extensive local agency; and to meet, in some degree, the expense of such a system, the price to parties subscribing for single copies, will be reduced only 25 per cent. We had intended to adopt the plan of sending not less than *two* copies to any order, and to give these for *one dollar*, or 2s. 6d. each. But it has been thought advisable, in order to secure a large increase to the circulation, and thus extend the benefits of the *Agriculturist* as widely as possible, to receive *single orders*, especially through agents, and, in such cases, to reduce the price from 5s. to 3s. 9d. We trust the friends of agricultural improvement throughout the British Provinces will give their countenance to the work in its improved form and character, not merely by subscribing and recommending it to their neighbours, but by contributing from their stores of accumulated knowledge and skill, some item of interest and value to its pages. If each intelligent subscriber would consider it a duty to send one such item during the year, what an interesting aggregation would the Volume present?

Why are the American journals so much superior to those of any other country in their local correspondence? Is it because their readers are more intelligent, or more patriotic? They certainly exhibit a more enquiring disposition than our people, and are not so unwilling to give their neighbours the benefit of any new fact they may discover. We hope this peculiarity of Canadian readers of agricultural journals may soon disappear. Let those of our friends who can write, and who think they have anything to write about that would be interesting or useful to their neighbours, make a beginning this year.

The present number is sent to many persons as a specimen of the forthcoming Volume, especially to Secretaries of Agricultural Societies; and if they decline to support a *home paper*—one that may justly claim some credit for the present improved condition of Canadian agriculture—prefering to encourage a foreign speculation, which has no other interest in, or connection with, the country, than to take away as many of its *dollars* as possible, they will be good enough to return the first number to the Publishers.

SQUASH.—A Squash was recently exhibited at Chicago, weighing 192 lbs!

AGRICULTURE—PAST AND PRESENT.

LECTURE DELIVERED BY PROF. BUCKLAND, BEFORE THE TORONTO MECHANICS' INSTITUTE, DECEMBER 21st, 1855.

In attempting to sketch the progress of Agriculture from the earliest periods of authentic history to the present times, the usual limits assigned to a simple discourse will allow me to glance only at a few prominent points which have distinguished, or characterized this invaluable art at its successive stages of development.

I make no apology for bringing before the attention of a city audience, a pursuit that is purely rural; for it will be at once admitted by all who are capable of rightly estimating the value of the subject, that it has a powerful claim on the earnest consideration of all classes of the community. In a country like this, so peculiarly adapted to agricultural pursuits, in which, perhaps, not less than three-fourths of our entire population are directly engaged, and on the extension and improvement of which, the increase and prosperity of our towns and cities mainly depend, the ancient, and indispensible, and truly noble art of husbandry, can never want zealous advocates, sincere admirers, and earnest and enlighted cultivators. The first and most pressing physical want of man is food, and the only means he has of obtaining it with certainty and in abundance, is by a judicious cultivation of the soil. The history of this art indeed is none other than the history of civilization, and its various epochs constitute the several steps of the world's progress in wealth and knowledge, happiness and liberty.

I have no intention of treating this subject in a dry and technical manner; much that would be interesting to the practical cultivator must necessarilly be omitted as unsuitable to the occasion, and the time allotted to this lecture, will not allow me to descend into particulars.

First, I may remark that Agriculture, which is the art of cultivating the ground in order to raise food for the sustentation of man, and the animals he domesticates, must necessarily be the most ancient pursuit. Its first records are found in the inspired writings of the Book of Books,—the Holy Bible. The only authentic account we have of the origin of our race clearly indicates the intimate connection that subsists between man and the earth, out of the dust of which he was created. Our first parents were placed in a garden "to dress it, and to keep it,;"—thereby indicating that the elements of both vegetable and animal life were treasured up in the soil. True it is that they lost their original innocency by transgression, and forfeited the elevated joys and privileges of paradise, and thereby

"Brought death into the world
With all our woe;"—

incurring a condition which the posterity of Adam has continued to inherit;—"In the sweat of thy face shalt thou eat bread, till thou return unto the ground; for out of it was thou taken; for dust thou art, and unto dust thou shalt return." A little further on the sacred historian informs us that the first offspring of the first human pair betook themselves to the pursuits of husbandry;—"Abel was a keeper (that is feeder) of sheep, but Cain was a tiller of the ground." Here we have evidence in the very infancy of the race, of the practice of the two great departments of Agriculture,—pas-

turage and tillage, precisely as they are divided and followed at the present day. That is to say we have Agriculture proper, or the art of cultivating the soil for vegetable productions, and that second, though by no means unimportant branch, which consists in the production of animal food. In the records of Agriculture, going back to the period immediately preceding the deluge, we find that Noah and his descendents were engaged in this indispensible pursuit. Among the earliest records of mankind we find frequent mention of the land of Egypt, indicative of its high agricultural condition. The Israelites had frequent recourse to this country in periods of distress and famine for corn and pulse, thereby indicating the advanced state in that early period of the world's history, of its industrial resources.

The cause of this fertility and early agricultural advancement, is to be found in the annual over-flow of the Nile, to the operations of which the formation of the valley of Egypt is mainly ascribable. The materials left by the subsiding of the waters, constitute what farmers would now call a rich top-dressing. Recent accounts from that country inform us that the government had prohibited the exportation of corn, anticipating a scanty harvest next season on account of the late partial inundation of the river.

"How easy, "says Pliny," is the husbandry of Egypt. For there the river Nile serving the turn of a good ploughman, begins to swell and over-flow at the first new moon after the summer solstice. He (the river) begins fair and gently, and so increases gradually. * * * * It is always observed, that if he rise not above twelve cubits high, the people are sure to have that year a scarcity." After describing the mode of cultivation, Pliny goes on to say; "The same husbandry is in Babylon and Selenica, where the Euphrates and Tigris over-flow their banks in like manner, but to better effect and greater profit, owing to the more general use of sluices and flood-gates. And in Syria they have small light ploughs on purpose for making their shallow furrows and dtitches; – whereas with us in *Italy*, in most places, eight oxen at least are required for one plough; and, indeed, to make any speed with it, they must work till they blow and pant again."

It is worthy of remark how from the simple circumstance of the annual over-flow of a river, the foundation of a regular system of husbandry was laid, and the aid of Geometry and siderial observations were required in order to restore to the respective owners of the soil their rightful occupancies,—whose land-marks had been obliterated by the swelling waters;—thus rendering Egypt the parent of Agricultural, Mathematical, and Astronomical Science.

It has been well observed that the agriculture of a hot and a cold, a dry and a wet country, presents in most interesting contrast the effects of man in overcoming, as a preliminary work, the effects of climate, and the extremes of drought and moisture.—The reader of Scripture will call to mind frequent expressions and inferences, requiring such explanation, and without which, some of the most powerful parabolic figures, both of the Old and New Testament, lose their force; when speaking for instance, of *dry places*, with the same understood feeling of dreary barrenness which our northern ear is now accustomed to attach to swamps and marshes; a superabundance of water in fact, instead of a deficiency.

We learn from the early history of the Jews that flocks and herds constituted the principal wealth, not only of that peculiar people, but also of many of the surrounding nations, Egypt alone, perhaps, excepted. The hand of nature had marked out that singular country for cultivation rather than pasturage, a characteristic which it continues to retain to the present day. The sheep for instance is an animal whose natural habitation is on dry and elevated ground, and consequently unsuited to the moist valley of the Nile. The tending of this useful animal was a favorite and honorable employent for both sexes of whatever rank or condition amongst the ancient nations of the East, and its improvement and diffusion afforded indisputable evidence of the progress of one of the principal departments of the world's Agriculture. Mr. Spooner, the well known author

of an excellent scientific and practical treatise on the sheep, observes in reference to these primitive nations, that "It is a singular, and not uninteresting circumstance, that in the same land where Abraham sat at the door of his tent viewing his flocks and herds; where Laban sheared his sheep, and Rebecca drew water for her father's flocks from the well,—in the same land the wandering Arab on the wild Turcoman still tends his flocks and droves, and leads them from pasture to pasture, watering them and tending them in the same manner as they were tended four thousand years before. The correctness of the language of Scripture is indeed evidenced by the manners and customs of these pastoral people, who, whilst all the world around them has changed, themselves have remained comparatively the same."

After these Asiatic Empires the next historic nation of antiquity is Greece, whose language, literature, and art, have exercised a powerful influence in elevating and refining the taste of all succeeding ages. Yet the literature of Greece, whether emanating from poet, historian or philosopher, contains almost nothing in relation to Agriculture.

We are told, however, by Pliny that no less than forty Greek authors had written upon husbandry, whose works in his day were no longer extant. Some imperfect idea may be formed of the state of agriculture of this imaginative and highly polished people from the writings of Heriod, Theophratus, Theocritus, Homer and Xenophon, from whom we should infer that the art of cultivation was in a state of rude and primitive simplicity. Indeed it would appear from the united testimony of Heroditus and Thucydides, that Greece was not a country naturally gifted for the pursuits of agriculture. There is proof, however, that there was no want of domestic animals both for food and labor. An excellent breed of cattle, sheep, swine and goats existed in Bœotia; and poultry in great abunaance. The horses of Thessaly were long celebrated; the breed of asses was also very superior; and the speed of the mules at the Olympic games has left an immortal memorial in the poems of Pindar.

Of the agriculture of the Romans we have a much more accurate and extensive knowledge;—the records that have come down to us being highly interesting and copious. From the very foundation of the city we learn one fact, which left its trace in Rome for many centuries afterwards, namely, that the assignment of a certian portion of land to every citizen, was the first care of the state, and that that quantity should not be exceeded was watched with the most jealous interest. The allotment to each amounted to not quite two English statute acres. This was a matter, however, subject to subsequent modifications, for we find after the expulsion of the Kings that seven acres was the amount assigned to each individual. In an oration recorded by Pliny, Marius Curius said that "*he* was not to be counted a good citizen, but rather a dangerous man to the state, who could not content himself with seven acres of land." We infer from this fact that the husbandry of the Romans at that early period was rather garden culture, than the extensive and systematic course which characterizes British agriculture. The small allowance of seven acres to each citizen was afterwards increased to fifty, and when their conquests were on a large scale to five hundred, beyond which the law would allow none to go. From the writings which have come down to us from these times, it is evident that the art of husbandry was conducted upon systematic principles, and on a scale much more commensurate with its importance. The high estimation in which this invaluable and patriotic art was held by the Romans is a matter well known to the readers of history. The most illustrious statesmen, orators, mariners and scholars, deemed it the most honorable employment of any in which they could engage. Generals, who were placed at the head of her legions, who pushed her conquests, and carried her eagles round the then known world, could handle the plough as well as the sword; they returned from the conquests of kingdoms to exert their energies in attending to their farms; and thought it a reward for their labors, when they could obtain manumission from service to the state, to enjoy the real pleasures of their country homes. Agriculture then stood on the capitol of Rome, emblematical in the figure of Ceres, overlooking and exerting a beneficial influence over a large portion

of the then civilized world. History is fond of telling, that when the heralds came from the Senate to call Cincinnatus to the Dictatorship, they found him at the plough.—Nothing can show much more strongly the high estimation in which the Romans were accustomed to regard agriculture, than the names of many of the patrician families.—Attilicus Seranus, who was elevated to the Consulship from the personal labor of his farm, got his surname of Seranus from his skill in *sowing*. The family of the Fabii, the Pisones, the Lentuli, all of aristocratic note, took their names, we are told, from *beans, rape* and *lentils*. The great name of Cicero, their immortal orator, literally interpreted into English, means a *vetch*. Agriculture was indeed patronymic in the Roman Senate, in which was to be often found embodied in the same person, the statesman, the scholar, and the farmer; and when disengaged from their senatorial duties, the personal labors of the field seem to have stood to them in much the same relation that the moors of Scotland, or the champaign and copses of England may be said to do to the members of our Imperial Legislature.

Pliny, in speaking of the abundant harvests gathered during the earlier days of Rome, says;—"What could be the cause of this abundance? Was it not because in these days the land was cultivated by the hands of great Generals, and the earth, as was most natural, delighting to be upturned by laurel-crowned ploughmen, and husbandmen decorated with triumphs?—or was it that such men sowed fields with as much skill and prowess as they won them; and laid out their ridges with as much judgment as they marshalled battalions?"

How much of this noble and patriotic spirit has descended the stream of time and marked and animated the agriculturists of modern periods, the present history of Europe and of our Father-land in particular, amply shows; the laurels of British victory have been won, (and, thank God, are *now* winning) by the indomitable valor of the owners, the occupiers and the tillers of the soil, who, as a class, in all periods of history, have been the great conservators of the institutions, as they have been the gallant defenders of the rights and liberties of their country.

Rome indeed possessed a rich and varied agricultural literature, based upon practical knowledge, and animated by the elevating influences of a high intellectual culture. The most popular and admired sketch of Roman agriculture that has come down to us, is, perhaps, that contained in the first Georgic of Virgil, the prince of Latin poets. Its extreme beauty, indeed, has had the not unusual effect of calling down somewhat severe criticism upon its didactic qualities as an agricultural effusion. But in truth it hardly affords fair ground for such a discussion. Like all the rest of Virgil's beautiful compositions, it, (if we may credit high authority,) is founded upon a Grecian model, and like most of them it has the rare merit of transcending the original. He continually directs the attention of the farmer to the changes and prognostics of the heavens,—a department of agricultural science affording the most brilliant opportunities for poetic language and imagery; and his verse abounds with sententious directions on the most proverbial and elementary points of husbandry, such as the frequently quoted passages on paring and burning, on fallowing, and on the alternation of green and grain crops, which Pliny seems to have read with critical attention and deferential respect. One passage is worth quotation, on account of its reference to the important subject of the alternate husbandry, destined, like many old things, to be revived in after ages, as a new invention. "Our poet is of opinion," he says, "that alternate fallows should be made, and that the land should rest entirely every second year. And this is indeed both true and profitable, provided a man has land enough to give the soil this repose. But how, if his estate be not sufficient? Let him in that case help himself thus. Let him sow next year's wheat-crop on the field where he has just gathered his beans, vetches or lupines, or such other crop as enriches the ground. For, indeed, it is worth notice that some crops are sown for no other purpose but as food for others; a poor practice in my estimation."—In another place he tells us, "Wheat, the later it is reaped the better it casts,—but the sooner it is reaped the fairer the sample. The best rule is to

cut it down before the grain in got-hard, when the ear begins to have a reddish-brown appearance. 'Better two days too soon than as many too late,' is a good old maxim, and might pass for an oracle."

Here is sound, practical advice, which farmers in the present day are continually neglecting. A short time since an eminent English agriculturist, (Mr. John Hannan, of Yorkshire) instituted a series of troublesome aad expensive experiments, in order to determine the most fitting time for cutting grain; and it is not a little remarkable that he arrived at the precise result, which Virgil so explicitly stated near two thousand years ago! This is one fact, among many that might be adduced, that should caution us against forming a conceited estimate of our own modern acquirements, and as a consequence, depreciating the wisdom and authority of antiquity. Chemistry has demonstrated that the Roman poet was right, by showing that the starch and gluten of over-ripe grain becomes converted into the woody fibre of the husk or cuticle of the seed; a substance comparatively indigestible and unnutritious.

The following quotation from the same author is excellent, and the advice it contains as applicable to us in Canada in the nineteenth century, as it was to the agricultural members of the Great Roman Republic in its palmiest days.

"Cato would have this point especially to be considered, that the soil of a farm be good and fertile; also, that near it there be plenty of laborers;—and that it be not far from a town; moreover that it have sufficient means for transporting its produce, either by water or land. Also, that *the house be well built*, and the land about it as well managed. But I observe a great error and self-deception which many men commit, who hold the opinion that the negligence and ill husbandry of the former owner is good for his successor, or after-purchaser. Now I say, there is nothing more dangerous and disadvantageous to the buyer, than land so left waste, and out of heart: and therefore Cato counsels well, to purchase land of one who has managed it well, and not rashly and hand-over-head to despise and make light of the skill and knowledge of another. He says too, that as well land as men, which are of great charge and expense, how gainful soever they may seem to be, yield little profit in the end, when all reckonings are made. The same Cato being asked, what was the most assured profit rising out of land?—made this answer,—"To feed Stock well;" being asked again, 'what was the next? he answered to feed *with moderation*.' By which answers he would seem to conclude that the most certain and sure revenue was *a low cost of production*. To the same point is to be referred another speech of his,—"That a good husbandman ought to be a seller rather than a buyer:' also, that a man should stock his ground early and well, but take long time and leisure before he be a builder;'– for it is the last thing in the world according to the proverb;—'to make use and derive profit from other men's follies.' Still, when there is a good and convenient house on the farm, the master will be the closer occupier, and take more pleasure in it: and truly it is a good saying, that the master's eye is better than his heel.'"

These it must be confessed are wise and prudential maxims, possessing a general application to all countries and to all times. With regard to the proverb that "fools build houses for wise men to live in,' however applicable it may frequently be, all we can say is, that its suitability to the city of Toronto, just now, is not very apparent.

How is it possible for the intelligent agriculturist of the present day to read such passages as we have just quoted without identifying the same subjects as still handled week after week in fresh and eager controversy, in our current agricultural periodicals eighteen centuries after these opinions were written? What a train of reflection, observes a modern writer, does it suggest on the eternal youth and freshness of nature! While not only the individuals who lived, thought, and thus wrote, but the very language they *spoke*, and the vast empire which seemed to them almost imperishable in its wide spread and unprecedented dominion over the earth, are all gone, but in the darkness of centuries that have closed over them like the long watches of a winter's night, the same themes come to us again after the slow and struggling dawn of a new civilization, from

whose daylight we endeavor to look back to the great yesterdays that the world has seen, and which but for the historian, the poet and the philosopher, would have left only such traces as exist in the ruins of the Colosseum and the Parthenon, or the vast architectural memorials that remain, without a tongue to tell their tale, in the plains of Central America. It seems difficult to realise the thought that the same sun which shone over the ripening corn, the same seasons which directed the labors of the Egyptian, the Greek and the Roman, that the same face of nature which smiles on race after race of mankind, whose spoken language is extinct,—still holds for us the same unvarying course,—renewing the blessings of each opening year, under the beneficent guidance of ONE, to whom "a thousand years are as one day."

(*To be Continued.*)

WHEAT CROP OF THE UNITED KINGDOM,—STATISTICS, &c.

An interesting discussion has been going on, for the last month or two in England, as to the extent of the last harvest, and the consequent amount of breadstuffs that must be imported to feed the population. A Mr. Caird has stated in the *Times*, the result of a survey by him from "Solent to John O'Groats'," which is, that the crop of last season was more than an average one, and that not more than 1,000,000 quarters will be needed from abroad. The conclusion is, that the high prices are not warranted, and are caused by speculation and the holding back of grain by the farmers. This has roused up the agriculturists, and many sharp retorts and positive denials are levelled at Mr. Caird. The agricultural papers are full of letters on the subject, and many facts and figures are adduced to show that Mr. C. is wrong. The *Mark Lane Express* in its Agricultural Report for November thus notices the subject :—

"Considerable excitement has been observed throughout the month, in consequence of the high value of all agricultural produce and the immense amount of controversy going on respecting the yield of the present year's crop of grain That the opinions given by Mr. Caird have been framed for the purpose of allaying popular excitement, and to keep prices in check, does not admit of a doubt. But the question to consider is, Are we to close our eyes to the fact that consumption in this country is considerably in advance of the production, and that we shall require a very large importation of food ? Now, unquestionably, the best mode of meeting a difficulty of this nature is to obtain corn wherever it can be purchased, and to offer such prices for it as will tempt the importers to increase their operations. At the present moment there is a good margin of profit on the imports of both wheat and flour from the United States ; but it must be borne in mind that the wants of France are nearly as great as our own, and that, as a consequence, we have now a formidable competitor in the field for the first necessaries of life. To assume, as Mr. Caird has done, that 1,000,000 quarters of wheat will be adequate to our additional consumption until the close of next harvest, is simply to argue upon a false basis ; and a trifling acquaintance with the import trade will at once prove that even large crops of wheat in this country—and this year's supply is certainly not equal to last season's, either in point of condition or weight—have never been equal to the demand. We find, however, of late, a growing feeling in favor of lower prices ; and this feeling appears to have resulted from two causes. In the first place it is clearly apparent that a peace with Russia, which country appears to be completely exhausted in its struggle with the Western Powers—is not very far distant ; and in the second, that the quantity of food produced in the United States and Canada, above the wants of both countries is very large, even after making due allowance for exaggeration. On the other hand, however, there is evidently a scarcity of grain in Germany, Turkey, and

Egypt, whilst it is stated on good authority that the future shipments of flour from Spain will show a considerable falling off. Our present position—though not one of extreme difficulty, because we are quite satisfied that high prices here will bring us all the corn that may be required above our own growth—is singularly important, because we find no decrease in the consumption, which is frequently the result of a high value; and to attempt to disguise the fact that our wants are very extensive, is simply to deprive us of a supply of foreign food which may be found highly useful at no distant day."

The following agricultural statistics have been quoted in the discussion above alluded to, and will no doubt be new and interesting to many of our readers :—

QUANTITY OF LAND CULTIVATED, AND ITS PRODUCE IN THE UNITED KINGDOM,

Mr. Spackman, in his excellent work on Statistics, assumes as follows :—

Quantity of land cultivated	46,522,970	Acres.
Annual produce of wheat for the United Kingdom,	22,000,000	Quarters.
Other grain	51,000,000	"
Viz.—England, wheat, 18,000,000, Scotland ditto, 1,750,000, Ireland ditto, 2,250,000,	22,000,000	"

CULTIVATED LAND IN ACRES :—

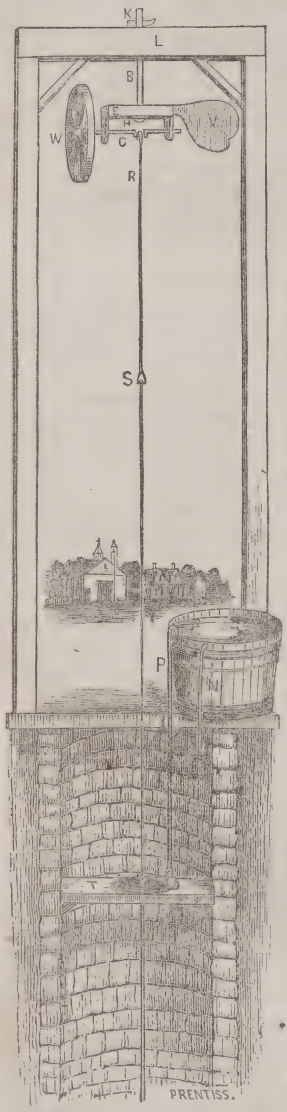
England	10,252,800	Arable.	15,379,200	Pasture.
Wales	890,570	"	2,226,430	"
Scotland	2,493,950	"	2,771,050	"
Ireland	5,389,040	"	6,786,240	"
British Isles	109,630	"	274,060	"
	19,135,990	"	27,436,980	"
Waste reclaimable	15,000,000			"
Waste unreclaimable	15,871,463			"
Total statute acres of United Kingdom	77,364,433			"

Mr. Macqueen published his work upon Statistics in 1850, from which we give the following extracts :—

5,500,000	acres	wheat	24,000,000 quarters.
3,500,000	"	barley, peas, &c.	18,375,000 "
7,000,000	"	oats,	45,500,000 "
3,500,000	"	potatoes, £49,000,000.	
1,600,000	"	gardens, £27,200,000.	
2,000,000	"	turnips.	
9,000,000	"	hay, clover, and grass.	
17,600 000	"	best pasture.	
3,900,000	"	sundries, carrots, fallow, &c.	
13,400,000	"	natural pasture.	
8,894,433	"	rivers, lakes, &c.	
1,280,000	"	forests, copses, &c.	
100.000	"	hops.	
Total, 77,364,433	"	Annual value, £658,548,536.	

Encouraging Young Men.—We copy the following from an exchange : Among the important things which should not be forgotten in every-day life is to encourage young men just starting in business. Old-established concerns will always do well enough, but young men always need encouragement in business, and it should always be the aim of all citizens to bestow their patronage upon the most deserving in our community in the several branches of trade and merchandise.

THE WIND-MILL—A MODERN APPLICATION OF IT.



The Wind-Mill is a very old invention, and has done good service in its day; but the unsteadiness of the power—for what is more fickle than the wind?—and the great strength of machinery necessary to resist high winds and tempests, have combined to drive it out of fashion in these modern go-ahead times.

But the ingenuity of these same modern times has looked into the subject, to see if the evils complained of could not be removed by new mechanical arrangements, and the result is that a machine has been constructed that will *adapt itself* to the ever-varying conditions of the propelling agency, unfolding its wings to the gentle breeze, and shutting them up in the face of the hurricane. The Vermont Wind-Mill is the latest improvement of this kind, and if it is half as good as it is said to be, it must prove useful to the farmer in favourable situations.

One of the most useful applications of the Wind-Mill, on a small scale, is that of raising water. The annexed figure is an illustration of the manner of applying wind-power to this purpose. Messrs. Ruggles, Nourse, and Mason, of Boston, U. S., have used the "Combination Pump" in connexion with the wind-power, and they say it is particularly adapted to the purpose, as it requires less power and possesses the means of forcing, and can be placed at any desirable depth below the top of the well, confined to plank T, where it is not subject to accident or frost. If placed in the well at a distance not exceeding 25 feet above the water, this pump will readily force the water from the deepest well. To prevent the water freezing in pipe P, make a small hole just above the pump, which will not practically affect the operation, but will allow the water to drain out of the pipe when the wind ceases to blow.

By reference to the figure, the principles on which they are constructed will be at once comprehended. The direct application of the power, without the intervention of any gearing or machinery, obviates much friction, hence a small amount only of power is required. The diameter of the wheel should not exceed four feet, and a few inches less is preferable. It is firmly fixed by its hub on an iron shaft formed of an inch bar. The sails or buckets are secured, at their outward ends, to a wooden rim, similar to that

of a large spinning-wheel. A $\frac{5}{8}$ inch crank is raised on the shaft at C, upon which is adjusted the upper end of the piston-rod, R.

THE BODY OF THE MILL.—A piece of plank, E, is suspended from the cross-girt of a frame, L, by an iron bolt, B, furnished at its lower end with a large head, H, and a washer, and secured by a nut, K, at the upper end, admitting of an easy circular motion of E around the bolt. This motion is coincident with that of the swivel on the piston-rod, S. The rudder, or vane, V, will necessarily throw the wheel, W, at all times, into the wind. The shaft, C, is suspended from the body by two straps of iron, through which it passes.

A breeze which merely agitates the leaves of the trees will set the machinery in operation. And when, in windy weather, a surplus of water is raised, it returns to the well by a waste pipe. A well, suitably located, will furnish water enough for an ordinary garden, and without labour, by the aid of this mill and pump.

STEAM CULTURE.—A writer, evidently of high scientific attainments as well as practical skill, has written a series of articles for the *Mark Lane Express*, (London, Eng.) on the subject of steam culture. He examines the various machines that have been "tried and found wanting", and those also but partially tested, including Romaine's Canadian Plough. He comes to the following conclusion :—"We would rather leave our readers to draw their own conclusions, than sum up in a single sentence a sweeping verdict against this kind of culture in any form. Cycloidal action we have seen impossible, tricloidal little better, while the extremes on either side are ten degrees worse. In short, the longer we live, the more our ideas harmonize with the straight forward action of our *old friend* THE PLOUGH, with his faithful allies, "drag-harrows," "cultivators," &c. No doubt objections many are brought against them ; but these we shall briefly dispose of in a subsequent article, as worse than imaginary. Meantime, let none of our readers suppose that we look upon the plough and our present system of culture as perfect." For the benefit of our non-technical readers, we may explain, that "cycloidal action" is rotary, combined with a forward movement of the rotating cylinder. A carriage wheel is a good example. "Tricloidal", as used by this writer, means a more rapid rotation, viz. *three* revolutions of the cylinder while advancing a distance equal to its circumference. Romaine's plough is, we believe, constructed on this principle. The "plough" consists of a cylinder, armed with hooked teeth, placed behind the engine, and made to rotate rapidly as the machine advances. The writer in the *M. L. Express* very satisfactorily demonstrates the impracticability of all such machines in an *economical* point of view. If impracticable in England, where steam has been profitably applied to many farm operations, such as threshing, &c., what shall we say to steam ploughing in Canada ?

TO MAKE MINCE PIES WITHOUT MEAT.—Prepare your pie-crust and apples in the usual way : when seasoned, and in the pie-pans, fill to the top of the apples with custard prepared the same as for custard pie ; then put on the top crust and bake ; you will have a good imitation of mince-pie in appearance, but in flavor far preferable, although the taste is similar.

EXPERIMENTS—HINTS FOR THE BOARD OF AGRICULTURE.

To the Editor of the Agriculturist.

Sir,

In the present state of agricultural science, when the economy of applying certain artificial compounds to the soil for the purpose of increasing its produce, or maintaining its fertility, has become a necessary study to the farmers of this country, it is the duty of our Agricultural Associations to assist them in such investigations, and to endeavor by well digested and carefully conducted experiments, to throw some light upon the various important subjects which are connected with this inquiry.

It is true that we have had experiments made in this country, the results of which have been communicated to our Agricultural Journals; but it must be admitted that very few of those which are recorded are capable of being employed by the scientific agriculturist in directing his practice, having in general been conducted without those precautions which are absolutely necessary to render experimental investigations of any real value, and we therefore find that the results are not regarded with confidence by the public.

In our well organized Board of Agriculture, numbering among its members some of the leading agricultural improvers of the province, we possess special advantages for arranging and carrying out such experimental inquiries respecting the effects of manures, and the economy of their application, as may tend to place our knowledge of this department of agriculture upon a foundation likely to advance the interests of the Canadian farmer, and at the same time to extend our knowledge of the laws which regulate the developement of our crops.

The board might direct their attention to the propriety of instituting a series of experiments with such fertilizers as bones and guano, more especially when applied to turnips; and to test the efficiency and economy of the various compounds of ammonia. They will be true benefactors to the country if they undertake the task, and carry it successfully to the end.—By such experimental investigation in the field, they will do more to advance agriculture and to awaken the attention of the public to the value of science, than by any other plan they could adopt.

One of the most important steps which the agriculture of the present day has yet made towards its establisment as a science, has resulted from the light which the researches of the chemist have thrown upon the nature of the connexion which exists between the soil of a field and the crops which are grown upon it. The fact that every plant, even the weed which springs up in the neglected field, abstracts from the soil a certain amount of earthy matter for its development, and which therefore it is necessary that it should contain to come to perfection, though for a considerable time recognized, has only within the last few years been employed to direct the practice of the farmer. But the mere knowledge that every plant requires for its growth a certain number of mineral ingredients, was insufficient to explain how a field, in the highest degree fertile to one particular crop, was incapable of yielding a remunerative return of a crop of a different kind. The difficulty however, so far as the chemical constitution of the soil is capable of influencing the growth of any particular crop, has been satisfactorily removed by the conclusion which innumerable analyses of both wild and cultivated plants have led the chemist to form, that the different families of plants require the materials of the soil in very different proportions; and also, that a plant like the turnip extracts chiefly, matter of a different kind from those selected by the wheat and other plants belonging to a different family.

It is easy therefore, when we are in possession of such facts, to understand how one field in a farm, apparently well adapted by its mechanical condition for the growth of any description of plant, may, while capable of yielding a fair return of some crops, refuse to bring other crops to perfection.

The apparently contradictory results which have followed the application of certain manures, as bone-dust and guano, to the soil, may also be explained in accordance with the above information; and lead to the conclusion, that when these manures proved without value in certain localities, and produced advantageous effects in other places, that the materials which they are capable of supplying were not of the kind in which the soil was deficient or of which it had been chiefly deprived by the preceding crops raised upon it.

The effect which the growth of a crop of turnips is capable of exerting upon the soil, or in other words, the quantity of mineral ingredients required for its full development, is particularly worthy of attention. It will be evident that as, in the present position of the agriculture of this country, the turnip crop must every year become more important, it is only in proportion as the farmer is acquainted with the elements it requires, that he can judge of the value of the various substances offered to him as manures.

According to the most recent and trustworthy analyses, the quantity of earthy matters, as we may term them, taken away from the soil of a field, by 20 tons of turnips is as follows:—

	Bulbs.	Tops.
Potash	142.66	88.82
Soda	17.31	16.76
Lime	46.24	72.14
Magnesia	18.16	9.58
Oxide of Iron and Manganese	4.35	2.67
Phosphoric Acid	25.77	28.80
Sulphuric acid	46.24	38.81
Chlorine	12.24	49.75
Silice	27.03	2.67
	340 lbs.	310 lbs.

In all 650 lbs. of matter derived from the soil. Like the potato, the turnip is distinguished by the very large amount of the alkalies, especially of potash, which it extracts from the soil, 265½ lbs. of potash and soda being taken away in 20 tons.

In Europe certain manures have been regarded by the farmer as specially applicable to the growth of the turnip crop :—thus bones, and lately guano, have been considered the staple manures of the turnip growers ; yet, examination of both of these applications shews us, that they are signally deficient in some of the matters which, from the above table, we perceive, are indispensable to the development of the turnip.

The bones of the ox have the following composition :—

Phosphate of Lime	55½
Phosphate of Magnesia	3
Soda and Common Salt	3½
Carbonate of Lime	3¾
Fluoride of Calcium	1
Gelatine	33¼
	100

It will be perceived from the preceding statement, that where bones have produced a full return of turnips, the soil must have been deprived of the potash and soda necessary for

their growth, and of course rendered less capable of supplying those substances to the wheat and the other succeeding crops of the rotation ; as twenty bushels of bones, which in many parts of England are considered sufficient for an imperial acre, would not convey to the soil more than 34 lbs. of soda, and a trifling amount of potash and magnesia, while the best Peruvian guano is seldom found to contain, in a hundred pounds, more than four pounds of potash.

Now, as the only judicious method of maintaining the productiveness of the soils of a country is by keeping up the stock of fertilizing materials which they contain, it is of consequence to investigate, by experiment, whether, by the addition of the different ingredients to bones and guano, we might not only increase the produce of turnips, but materially improve the succeeding crops of the series. By mixing the alkalies potash and soda with either bone-dust or guano, we will not only supply the matters in which they are chiefly deficient, but also give to the soil other valuable ingredients.

Some experiments should be undertaken for the purpose of testing the value of guano and bones, and mixtures of these manures with alkali as applicable to the turnip crop. As to the mode of conducting the experiments, we would propose, 1st, That a field should be selected, and patches each containing half-a-rood measured off from it; and that the appearance of the soil and sub-soil, with the history of its treatment and cropping, should for some years previous accurately be noted by the experimenter ; and samples both of the surface and undersoil of each patch, preserved for analysis. 2nd, The same quantity of the same parcel of seed should be sown on each patch, and, if possible, on the same day. 3rd, The quantity of the manures applied, as well as of the seed, should be determined by weight, and be from the same samples in every case. Samples of the manures should also be preserved. 4th, A report of the appearance of the crop should be presented by the experimenter every month, and the amount of the final produce in each patch should be carefully ascertained by weight, the produce in tops and bulbs being separately determined. Samples of the produce of each patch should also be examined in the laboratory, as some interesting experiments made in Scotland, and recorded in the Transactions of the Highland and Agricultural Society tend to show, that the kind of manure employed exercises a considerable influence over the composition and fattening qualities of the turnip crop. The same statement is made by some continental authorities respecting other crops, and there is reason to believe, correctly ; but on this and other subjects connected with agriculture, numerous experiments are yet required, before the question can be regarded as settled.

The experimental patches might be arranged in the order which is here laid down, a square being left without manure, so that the natural action of the soil, and the amount of the materials which it is capable of supplying to the crop may enable us to judge of the increase due to the artificial materials employed:—

Mixture of dissolved bones and alkali.	Farm-Yard Manure.	Mixture of Guano and Alkali.
Guano alone	No Manure.	Dissolved Bones alone.

As to the superior value of bones dissolved in sulphuric acid, compared with ground bones, as an application to the turnip crop, there cannot, among those who have tried both be a second opinion. It is, therefore, of consequence, that the manure, poor, as we have seen, in alkalies, but rich in phosphates, should be tested as to its effects, not merely upon the turnip, but also upon the crops of succeeding years; and for this purpose it would be desirable that the experimenter should closely observe, and carefully ascertain, by weight, the amount of produce on the patches for at least the two years succeeding the experiment. It is not to be denied that such experiments, properly conducted, impose considerable trouble on the experimenter; yet experiments must be made, and on the soils of this country, before Canadian Agriculture can be advanced to any degree of scientific exactness.

AGRICOLA.

Toronto, 17th December, 1855.

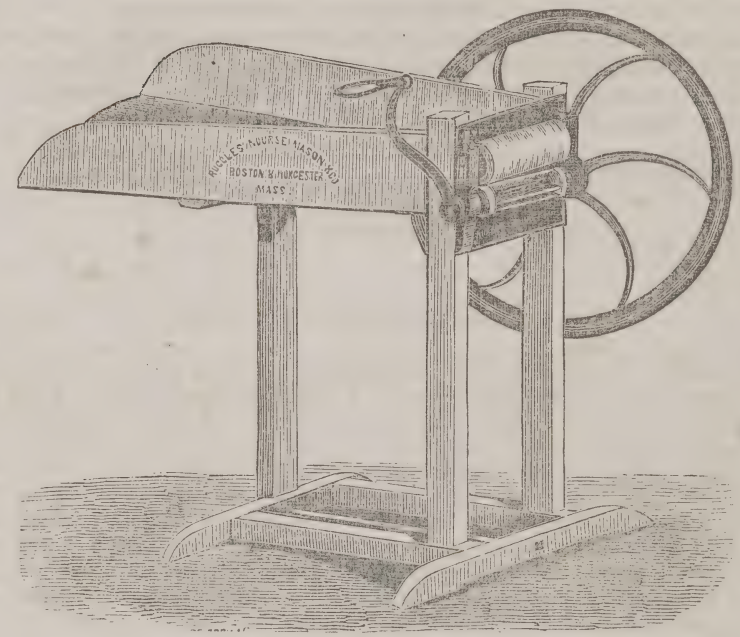
TAKE AN AGRICULTURAL PAPER.

It is a matter of surprise that there are still so many farmers who consider it useless to take one of the many agricultural papers. With such men reasoning is of little avail. Plain facts are even doubted, if they cost time to read them and postage to pay for them. Sometimes, however, a random shot convinces one or two, to such a degree as to make a trial. As an encouragement to take such a paper, we would state what the results have been with ourselves. In 1839, a travelling clergyman in the far west, handed a copy of the Cultivator to a missionary, who read it and thought it good, but not adapted to his calling, although he had a farm. He in turn handed it to another missionary, who was so well pleased with it, that the subscription was immediately forwarded, and monthly the Cultivator made its visit beyond the bounds of civilization. It told of splendid Durham cattle, Berkshire pigs, &c. It introduced the reader into the society of many practical men. The successful apiarian, JOHN M. WEEKS, wrote articles for its columns, which were just the thing for us, who knew not how to obtain honey without murder. The right to use his hive, and also his Manual were obtained. Success attended the effort, and made the land to flow with honey. A removal to Canada in 1843, rendered it necessary to comence with cutting a "bee tree." The result has been that from the small sales of spare honey, enough was realized in time to purchase 200 acres of wild land, worth now two thousand dollars. All attributable to the information obtained from reading an agricultural paper. J.V., *River Thames C.W.*

A NIGGER LIEBIG.—"I say, Sambo, does ye know what makes de corn grow so fast when you put de manure on it?" "No, I don't hardly." "Now I'll jist tell ye. When de corn begins to smell de manure, it do'nt like de 'fumery, so it hurries out of de ground, and sits up as high as possible, so as not to breaff de bad air."

NOT GIVEN TO CHANGE.—A man with a moderate appetite dined at an hotel, and after eating the whole of a young pig, was asked if he would have some pudding. He said he did'nt care much about pudding; but if they had another little hog, he would be thankful for it.

THE HIDE ROLLER STRAW CUTTER.



CREDIT, Dec. 17th, 1855.

To the Editor of the Canadian Agriculturist.

SIR,— Not finding among the many interesting accounts of machinery contained in your valuable periodical, any description of a really good chaff-cutter, adapted to the use of a man keeping several horses, and feeding them all chopped stuff, I am induced to trouble you with this, requesting you to inform me if you know of any really efficient machine to be worked by horse-power (say one or two horses) and which will cut up a large quantity of stuff in the least time and with the least manual labour. With most of the common ones worked by hand I believe I am acquainted, and have found them generally inefficient, requiring too much *time* and *labour* to be used on a large scale. I am fully convinced by experience of the great advantage of chopping feed, to both horse and owner, but manifestly to the latter; as all waste is prevented, and from one-third to one-half good clean wheat or oat straw may be used with benefit, and by mixing a little bran, a few oats, bruised or boiled, (according to circumstances) a little salt, a mess will be produced which horses will eat greedily, and fatten upon too; mine will at any time leave the best timothy hay to eat chopped stuff consisting of half straw.

Now is the time, when prices are unprecedentedly high, that it behoves every farmer

to economize his fodder, and I am sure that if every man fed his team upon my system, much fine hay that is trampled under foot and thrown out on the dung-hill, would be taken into Toronto and sold for £7 or £8 per ton, clear gain to the farmer, his horses looking none the poorer.

If, sir, you are of my opinion, and think it worth while to insert the above in an early number of your journal, and will at the same time tell us where to procure such a machine as I have mentioned, it will be to the benefit of the farmers, and you will much oblige,

Sir, Your obedient servant,

H. R. FORSTER.

REMARKS.—Straw or Chaff-cutters are made in such variety, and are so well known to our readers of all classes, that we have not thought it worth while to attempt a comparison of good qualities, or quite safe to recommend one kind in preference to another. We have used and seen used, several kinds, but cannot say that we have yet found one that wholly satisfied us, or that seemed incapable of improvement. Upon the whole we prefer those that cut upon the raw-hide roller. The Yankees, who are very cunning in matters of this sort, use them in preference to any other. The grand objection against them here is, that they cut the straw too long. Messrs. McIntosh & Walton of this city have added more knives to meet this objection, and they now sell them very rapidly. One of these straw-cutters of the largest size, driven by a single horse-power, or one of Emery's two-horse-powers with a single horse, would cut in an hour or two, as much feed as would be consumed by the stock of an ordinary farm-yard in a week. Care would be necessary in feeding, as roots or stones in the straw would be very apt to disable the machine. We intend to set one of this kind in operation at Millbank Farm next winter, if no better shall make its appearance in the mean time. We may mention for the information of our correspondent, that a new adaptation of the hide-roller principle has been recently brought out in the United States. It is called Gale's Straw-Cutter, and is highly spoken of.

INDIAN CORN.

A REMEDY FOR THE HIGH PRICE OF BREAD IN ENGLAND.

Among the various suggestions for mitigating the high price of food in England, with which our agricultural exchanges are filled, we find, in the *Mark Lane Express*, that of using Indian Corn. The deficiency in breadstuffs is variously estimated at from one to four millions of quarters, and how this is to be supplied is the great question.—All eyes are turned to America, and though our supply is large, we, who are on the spot, know that it can never meet so great a deficiency. During the famine in Ireland Indian corn and meal was sent over in large quantities from America, and its use being thus forced upon the people under the pressure of absolute want, their prejudices gave way, and, we understand, large exportations are now made to that country, and Indian meal has become a common article of food. The English, it seems, have not yet be-

come practically acquainted with it. But from a letter in the *Mark Lane Express*, by a Mr. George Griffith, we infer that another market is about to be opened up to the corn growers of America. After mentioning the failure of supplies from the north of Europe he says:—

If we look, on the other hand, to America, at least for this season, we cannot expect that she can send us enough wheat and flour to bring down the home price sufficiently to relieve the great hardships that the working classes are now laboring under, especially as the Greek merchants are transplanting their scene of operations from the Baltic and the Black Sea, to America, it being well known from their great command of capital, and the combined manner in which they act, that high prices always follow in the wake *of their* operations.

Yet amidst all the adverse views of our future, as to the price of bread, there is one channel by which we may hope to have it sold at a moderate, if not a low price, and that is, by the use of Indian corn, when ground and dressed.

By the blessing of Providence this year's crop of Indian corn in America is superabundant, the various estimates putting it down at from 800 to 1000 millions of bushels, and it must be apparent that our present high prices and the fear of their continuance will cause the people of Great Britain to turn their attention to the use of this valuable article of food.

More than half the population of the United States live upon it, and the following may be relied upon by those of our fellow-countrymen who have never known what Indian corn flour is.

It is ground in the same way as wheat, the stones being kept wider apart than for wheat, and driven more slowly; and as the stones used in the United States are made in England, there will be no difficulty in procuring them.

It is also ground into grits, called "Hominy," by large hand steel-mills, similar in construction to those used for grinding coffee.

Hominy is eaten by the rich and the poor in America, and men can work more, longer, and have better health, (inasmuch as it is an antagonist to indigestion) than with any other food, animal not excepted; and it has one great advantage, that it can be eaten hot or cold. It is used in water, milk, or broth, as oatmeal is with us, four pounds' weight being enough for ten persons; it is also made into stirabout; and although American wheat is amongst the finest in the world, Indian corn flour is more nutritious.

When broken in a steel mill, it is put to soak all night in warm water, and with bacon or milk twelve pounds will last one man a whole week.

In another form it is called "Samp," the skin is scalded off, and used as peas porridge with pork.

Wheaten flour *when mixed with one third Indian corn flour* is preferred to bread made altogether from wheat.

It is also used as pudding, blended with milk, eggs, and treacle.

The French Canadians burn the skin off, and boil it in milk for breakfast; in fact it can be mixed with or adapted to anything.

The non-use of it in England arises from its not having been tried, and the climate of the south and east parts of England will be found favorable for its growth.

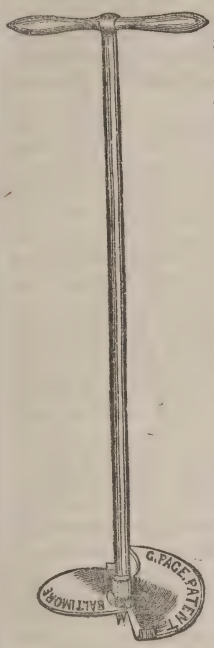
One pound of this meal put into a quart of water, with three parts of water added at intervals whilst boiling, will weigh four pounds and a-half when served up in a dish.

In Portugal, Spain and Italy it is the principal food of the people, and it is now extensively used in Ireland. It improves on acquaintance, as wherever it has been introduced the sale rapidly increases.

Indian corn flour therefore, if adopted in Great Britain, will tend to reduce the price of wheat flour materially; and hoping that the foregoing remarks will be of more use than Mr. Caird's statistics or Mr. Sturge's alarming circulars, neither of whom have proposed any remedy for the present burthensome prices,

I remain, yours truly, GEORGE GRIFFITH.

POST AUGUR.—DIGGING POST HOLES.



The post-and-rail, and post-and-board-fence, are, after all, about as economical and efficient as any within the reach of the ordinary farmer. If well made, they will last a generation. Good cedar posts may not last "for ever-and-ever," as the little boy said, and believed, "because his father had tried them many-a-time," but they will last long enough to warrant the expense of putting them in the ground.

We are not about to write an article on the best mode of making a fence—that we may do in a future number—but to inform our readers of an improved method of digging post-holes. The common mode of digging large holes that might serve as a grave for the digger, has been discarded by the knowing ones, wherever the land is not too stoney. The annexed cut represents a post-hole borer that can be operated by one man, and it will make a *better* hole, and quicker, than the spade. The hole is just large enough to receive the post, and will hold it much firmer than a large hole, recently filled with loose earth.

The post-augur is a cheap implement, and may be had at almost any general hardware store. The price in Toronto is from $3 to $4, according to size

MALLEABLE IRON.

The extensive introduction within the last two or three years, of articles, especially those of small size and irregular shape, manufactured from malleable iron, and their great superiority both as to durability and cheapness, over those forged by the blacksmith's hammer, will justify a short description of the process, and of the establishments from which Canada is mainly supplied.

The process of converting pig iron into malleable iron, so that it may be twisted and bent without fracture, was known and practised in England long before it was applied to a practical use in the United States. It is asserted by a leading New York journal, to which we are indebted for the following particulars, that an ingenious Yankee, named Seth Boyden, of Newark, N.J., is, if not the inventor, the first man who gave to the United States, the process of making malleable iron—that is of converting pig iron, cast in any form whatever, into wrought iron. "The advantage of this discovery" says the journal alluded to "is seen in the production of the smaller articles of hardware, such as are used in saddle and harness making, the intricate parts of gunlocks, telegraph insulators, and parts of a great variety of machinery, the reaping and mowing machines, cotton and woollen machinery, melodeons, fire-proof safes, &c. Before this discovery these articles were made by the slow process of ham-

mering them out of wrought iron ; and, the labour being great and the product small, the cost of these articles was necessarily very high. But by this process the patterns are moulded in sand very rapidly, and with far greater accuracy than could be attained with the hammer and file. The melted iron is then run into these moulds. This cast-iron ware is now converted by Mr. Boyden's discovery into tough iron.

The history of Mr. Boyden's discovery is just this : He does not pretend to have made an original discovery, since it was some malleable iron castings imported from England by Mr. David Beach in 1825 which fired his mind with the immense advantages of the art, and a desire to discover it. To think with him is to do, and forthwith he began a series of experiments. In the course of one or two years he attained the desired result, and opened a foundry in Newark.

At that time a part of the secret of the business consisted in the supposed fact that the malleable castings could only be made from iron produced from the ore of the Sterling Mine in New York. The fact that the two foundries in Newark were the only ones in the country, and that the Sterling ore was the only ore which could be used in making the wares, induced some speculators who had purchased the Sterling mine also to purchase the Newark foundries and the secret discovered by Mr. Boyden. This company was named "the Boston Malleable Iron Company." Their supposed monopoly was broken up by the discovery that certain ores in Pennsylvania produced iron which could be converted into malleable as readily as the Sterling ore.

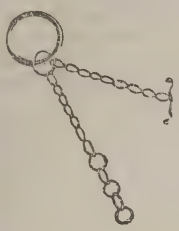
When the discovery was first made the malleable iron castings sold readily at from 30 to 75 cents per pound, but now the price ranges from 9 to 16 cents for a more perfect article. In Newark there are seven foundries for making malleable iron. These establishments sell their articles in an unfinished state, that is to the plating factories, or those who use them in manufacturing articles of which they are a part, for instance to the makers of patent safes, reapers, &c. The pig metal used is made principally from the Salisbury (Conn.) and Sterling ores, these furnishing not only a tough article but a smooth surface. In the first room of the foundry we found the moulders at work, forming the various articles in sand. The raw pig-iron is melted in an air or refining furnace, which removes from it all its impurities, and when thus refined is run directly into the moulds. The castings thus made are placed in a revolving cylinder, and by rubbing against each other are cleaned of the moulding sand. This is in a separate room, near the engine. From this place they are taken to the *annealing* room, where the annealers trim, select and pack them in cast iron boxes, the spaces between the castings being filled with an oxyd of iron. Each box is then tightly covered with an iron plate and carefully luted, *i e.* sealed around with clay or some other substance, to keep the fire from reaching the castings. The boxes are then placed in the annealing furnace, which in its appearance somewhat resembles an ordinary heating furnace in a rolling-mill. When the boxes are arranged properly, the furnace is walled up tightly and the heat applied for about seven days, and the work is done. It seems to be a simple process, but if you will take a stirrup iron as it is cast from pig iron and break it as easily as a pipe stem, and then one which has been *annealed*, and find it tough as a horse-nail, you will own that this simple process is one of very great value. It will be seen how much depends on having the right ores, and then on properly refining the iron. If these parts of the process are not carefully attended to, an imperfect result is secured.

In the fire-proof room of the Messrs. Eruen are deposited two thousand patterns of articles manufactured into malleable iron castings ; among them the spear used in taking whales, the boarding pikes, parts of guns and pistol locks ; parts of various cotton, woollen, reaping and mowing machines ; stirrups, hames, and all sorts of saddlery hardware ; parts of stove and tin ware, parts of carriages, &c.—giving an imposing idea of the uses to which the discovery has already been applied. As to the value of the discovery, it may be inferred from the fact that it has reduced the prices of many articles one thousand per cent, beside producing a perfectly uniform article in a most endless quantity. The articles thus produced can be more easily and neatly finished, and they can be furnished at a price but a little above the value of the wrought iron, as in the old process it would go to the blacksmith to be forged with the hammer into the various articles needed. It is, in truth, a very valuable and interesting business.

In seven malleable iron foundries of Newark about two hundred hands are employed, who receive some $70,000 in wages a year, and the annual sales are about $375,000 a year.

Roses.—According to Agassiz, no fossils of the rose have ever yet been discovered by geologists. He thinks the creation of the plant is coeval with that of man.

CATTLE-TIE.



This cut represents a very good Cattle-Tie that any blacksmith can make. It is, no doubt, more comfortable than the upright posts or stantions in common use. It will slip on the post as the animal gets up or down. The animal can also turn and lick itself when thus fastened, a fact of some importance. Such a chain will last an age. No *good* farmer will suffer his cattle to be exposed to the pinching, *starving* cold of a Canadian winter. We have inserted the above as a hint to some of our readers who may not yet be able to take out their degree of G. F.

CHICAGO AND ITS BEEF.

The act of Reciprocity, and the construction through Canada, of links of Railways, to connect the Eastern States with the Great West, give to the industrial pursuits of our neighbors, an interest in our eyes, which they never before possessed. Chicago is one of the wonders of the West. From a small town of 4479 habitants in 1840, it has grown to a large city of 75,000 inhabitants in 1854, with 17 Railways radiating from it like the spokes of a wheel, far over the surrounding prairies.

Chicago is not a manufacturing city, and its imports have hitherto exceeded its exports, and yet it is the most rapidly growing city in the United States, and business-invested capital is nowhere employed to greater profit. It is the principal emporium for the North West, and the amount of its Railway traffic is enormous. One branch of industry has grown up there within the last three or four years in which it bids fair to out rival all competing cities. We refer to the slaughtering and packing of Beef. For quality and skill in packing and preserving, it is said Chicago ranks far a head of Cincinnati in the Liverpool market.

Our readers will no doubt be interested, as we have been, with the following graphic description of the beef-packing establishments of Chicago, by one of the editors of the *N. Y. Tribune*:—

Having recently escaped from New York—where every succeeding European mail dins us with the shock of war, and the demolition and reconstruction of armies—it seems to promise a great deal of pleasure here in the midst of these peaceful prairies—to devote half a day to the inspection of the process that transforms the bellowing herds into the cargoes of barreled beef that sustain the fiery valor of those distant embattled hosts. A walk of two miles southward, along the Rock Island railway track, and then a diagonal walk westward, of the same length, along a plank road laid down upon the prairie, and we arrive at the wife-beating village of Bridgeport—during the walk through the village we witnessed no less than three matrimonial rencontres—then a turn down a newly-made street, where the pedestrian sinks at every step to the knees in the softened loam of the prairie, and we have reached the packing-house. It is a new, substantially-built, square stone building, owned by the Messrs. Hough Brothers, two energetic Western men with all the open hospitality of their country The building fronts upon a creek, which communicates indirectly with the lake; and there is a spacious dock for the storage of their innumerable packed barrels, as they issue in one continuous stream from their house.

When September month begins to wane and cooler days are ushered in, the drovers begin to assemble together their fatted herds, and the roads leading to Chicago are suddenly alive with bellowing droves. We will select one herd from the many that we see in tardy movement around us, and watch its progress through the various stages until it is rolled on to the dock transformed into "Extra Mess Beef." We have alighted, then, upon a drove of some 300 head, raised, we will suppose, in La Salle County, and contracted, some time past, to the Messrs. Hough, at the rate of five dollars per hundred weight for the beef—the offal being given in. By much whooping and chasing, the mounted drovers have brought the bewildered herd to the strong brick wall that encloses the yard ; the wide gate is swung open, the cattle thrust in, and there suffered to remain a while to collect their wandering senses.

The following morning their slaughter commences. Half a dozen noisy fellows, with poles in their hands, present themselves in the yard, and detaching about fifty from the herd, drive them into a closer yard. This is a narrow inclosure separated from the main yard by a gate, and communicating by means of sliding doors with four close pens, where the animals are ultimately roped for the slaughter. Having driven their cattle into the smaller yard, the men continue their pursuit, and further detail four or five of the slithering brutes into each of the four close pens. A door is now withdrawn from within, a powerful negro presents himself, and lassoes one of the cattle ; two men then haul upon the windlass, and in spite of the most violent bovine resistance, they draw the struggling wretch down to the bull-ring. There is some peculiar dread of the negro, which renders the dangerous process of roping a work of comparative ease to him. But at the other extreme pen, four white men are attempting the same task, and it is absolutely unsafe for them to show themselves within reach of the animal's horns. The ax is applied, and the animal is blooded. To each pen there is a bed, as it is called—that is, a place to dress the bullock, and one is now lying prostrate upon each of the four beds.

Now the butchers take the cattle in hand ; for these we have been witnessing at work are only laborers. These butchers are a select corps—each an Achilles in his peaceful way.—Accustomed to this wholesale mode of slaughter, where time is economized to the utmost, they have acquired a dexterity and a breadth of cut that would astonish some of our Fulton Market worthies. The cattle are poised on their backs, (pritched is the technical term,) and three butchers fall to work upon each. One man flays the head and decapitates the animal, and one strips each side ; the haunches are then cut asunder, and the bullock is raised to his "first hoist." It is a treat to see these fellows work. They are great braggadocios, and numerous pints of whiskey are pending between the rival bands upon the number of cattle each can respectfully put up. Their work is of a repulsive character, but they evidently like it.

"The hand of little employment hath a daintier sense."

and Providence has wisely designed that, whatever his occupation, a man shall find a pleasure in it. They are working against time ; very little talk is indulged in, and the fast workman keeps the less skillful traveling, in order to maintain pace with them. There is no drinking except of beer—and then at a clandestine hour, when the master's eye is turned—and the work goes on with excellent decorum.

The first hoist is worked off, and the animal is again raised until he is landed upon the balks. These are two parallel beams with polished surfaces, running longitudinally through the building. Two laborers swing the suspended carcass back out of the way of the beds, and the butchers follow it up to finish dressing it, while the negro and his white satellites prepare another bullock for each vacant bed. This process is repeated until the day's work is achieved, and 150 carcasses are suspended by their heels to stiffen until the following morning.

The next stage is in the cutting-room, which is on a level with the slaughter-house, and only separated from it by the forest of the sides of beef which intervene. Here the beef is weighed, cut, cured and barreled, Immense vats are sunk on each side the building, each capable of holding twenty carcasses of beef ; and the pumps and machinery for the supply and withdrawel of the brine are fitted up underneath the building. When the day's work begins, a force of men, armed with knife and saw, make an attack upon the stiffened beef and reduce it into quarters as rapidly as they can ply their instruments. When cut down each carcass is weighed—the owner being generally present—and the beef is deposited upon two immense racks. The demolition of the quarters then begins. There are two qualities of mess beef—the extra and the prime. The extra is composed of the select cattle—the heaviest and the choicest—and it is reduced to component pieces with the knife and saw. It

is packed in tierces containing 304 lbs, having 38 pieces of 8 lbs. each to the tierce. This is chiefly packed for the East India maket, and particular care is bestowed upon the preservation of it. The second quality—consisting of the "prime mess"—is made generally from a less choice quality, and is cut into pieces of no precise weight with a heavy cleaver. This beef is packed in barrels containing 200 lbs, the pieces not being enumerated, and is principally disposed of for the supply of merchant vessels.

As the cutters reduce the beef to pieces, porters are employed in removing it to the vats, where it is allowed to purify itself by a stay of one or more days in brine. When ready for the packer it is withdrawn from the vat and again removed in barrows to the scale. Here it is weighed off in drafts, and stowed compactly in barrels; a layer of dry salt is then spread over the head, and the barrel is taken hold of by the cooper and in a few moments headed up. A removal to the brine-yard, where the interstices of the contents are filled in with brine, and the barrel is finally rolled on to the dock, where it is ready for transportation. We remarked that great care was required in the cutting of the tierce-beef, since no variation is admissible in the number of pieces packed in: if the weight is deficient, the tierce would be condemned by the inspector, and if the weight overruns, the surplusage is a loss to the packers.

We were grieved, in walking through this immense "manufactory" of beef, to see the many hogsheads going to waste which would rejoice so many of our needy community, could it only be transported to them. Outside of the slaughter-house we remarked a small shipload of the livers and hearts of the cattle, thrown aside as valueless; the hogs were putting them to use certainly; but there are many industrious fellow-creatures in New York who would be tempted to dispute their meal with them. Inside the building we saw shanks and waste fragments enough to supply soup to the indigent for a whole season. If the laws regulating the interchange of commodities could be so improved as to facilitate the transport of them directly from the producer to the consumer, we might procure our necessaries at rates nearly approximating to western prices, and the chief cause of hunger in the cities be removed.

MANAGEMENT OF SHEEP.

On Saturday, the 3rd Nov., the members of the Reading Farmers' Club met at their Reading Room. Mr. Hicks read the following very interesting and instructive paper: Having been requested by the committee in my turn to open this day's discussion, and being fully persuaded of the great benefit we derive from the friendly interchange of opinion upon practical subjects connected with our business, I venture to appear before you, not so much, believe me, with the idea of offering instruction, as of learning something myself from the observations which I trust my opening remarks will call forth. I have therefore chosen a subject exceedingly simple in itself, but intimately connected with our well-doing as agriculturists, as forming one of our principal sources of yearly profit, but upon which a great diversity of opinion exists, and therefore I have thought it well worthy an hour's discussion by the members of a farmers' club. The value of the sheep as a domestic animal has been well known from the earliest ages, and we read in almost the first pages of Holy Writ that a man's possessions or wealth were computed by the number of his flocks and herds, but it seems to have been principally valued on account of its fleece, and it is only at a very much later period that its true value as an article of food seems to have been fully appreciated; indeed, at the present time, on some parts of the continent, it is held in very low estimation; in some parts of Russia it is never eaten, and in Spain it is only used by the lowest orders. It does not appear that the sheep was much known in this country until after the invasion of the Romans, who established a woolen manufactory at Winchester, thereby offering, of course, a great inducement for the production of the raw material, and for a long course of years it continued the great emporium of the woolen trade. In later years, as the feudel system declined, the quantity of sylvan game decreased, and greater care was given to

the raising of the domestic animal, better laws were made for the protection of property, and the attention of the flockmaster was directed more to the carcass than the fleece. It has been proved by authentic documents that the number of sheep in the United Kingdom has more than trebled within the last 150 years, affording a conclusive proof of the rapid strides that have been made in agriculture within that period. How has this been managed? The quantity of ground under cultivation has been increased; lands before thought worthless have been brought into cultivation for the production of sheep-keep, when, after the introduction of the turnip crop, it was found that a regular supply of food could be produced for every season. The fact of the sheep living and thriving in climates and situations where other animals would scarcely exist, its cost being within the means of the smallest occupier of land, render it, if not the first, at least one of the most valuable animals on the farm. But I am somewhat running away from my subject, viz., the management of sheep. The two great points which present themselves to my notice, are the breed best adapted to this peculiar locality, and the speediest and most economical means of bringing the same to early maturity. To attempt to go into the merits of each separate breed would, I think, be quite unnecessary. It will be readily allowed that the one best calculated for our use is the Hampshire Down; for although the Sussex is undoubtedly a superior animal as far as regards the quality of its flesh, yet nothing can beat the former for the strength of its coustitution, the quantity and quality of its wool, and the great weight to which it may be brought at a very early age. There are some men who prefer the cross-bred animal—the best I believe to be between the Hampshire Down and Cotswold; but having tried the two sorts side by side for two years consecutively, I must give a decided preference to the thorough-bred. I have always been of opinion that, in this branch of our business, quality will always beat quantity; and as I think it will be allowed that Down mutton will at all times command 6d. per stone above the others, the increase in weight not making up for the deficiency in price, the only way in which I should use the half-bred would be as fat lambs. The down has been much improved within the last few years, not by crossing, but by a judicious sorting, of flocks; and to such perfection are they now arrived, that, upon seeing the beautiful specimens of rams exhibited at the late fairs for sale, one is almost tempted to exclaim—Can there be any further improvement? The next point for our consideration is the feeding. The old plan of keeping flocks until six-toothed is become quite obsolete; or at least such are only to be met with in parks, or on the farms of such as farm only for amusement. Since it has been found out that by extraordinary means the sheep may be brought to perfection at twelve months old, and even by ordinary means at twenty-four months, the system of early feeding has been universally adopted throughout the country. An old friend of mine used to say, when talking on this subject, in raising and feeding any animal, "Always remember never to allow them to lose their sucking flesh," or, in other words, always keep them in a thriving condition. Remember, what is lost in one month takes two to regain; and here we who buy in our lambs in the fall have a great evil to contend against. The breeders, for the purpose of course of making as much profit as possible, at the same time to get credit for their stock, spare neither trouble nor expense, so that we find it extremely difficult to keep them up to the mark. To effect what I said just now, a regular succession of food is required; and not only that, but the quality of each should be superior to the one preceding; but here we have sometimes the season to contend with, and this year is an instance of it, in many places the turnips being superior to the swedes; such being the case with me, the plan I have adopted has been to purchase only a sufficient flock to feed off my best roots. It is a great mistake which many of us make in overstocking, obliging us, as in the last season, when the frost did so much damage to the late crops, to get rid at a disadvantage. The sheep being a ruminating animal, the great business of its existence is to procure its food and take its rest: during the latter period only it is gaining flesh. The greater opportunity therefore you give him in procuring the former, the sooner you will arrive at the result at which you aim. The great secret of

feeding, after all, is to give the animal the food it likes best at the proper times, and as much, and only as much, as it requires; and here the great benefit of the turnip cutter presents itself to our notice, enabling the shepherd to carry t is out to the letter.—Where it is not used, a much larger quantity of turnips must be given than is necessary for their consumption, and as a matter of course, much must be left behind to be consumed by an inferior flock, exposed to all weathers, and consequently losing much of its feeding property, offering conclusive proof that although the system of trimming and cutting appears at first sight expensive, yet in the end it will be found the most economical plan. The same argument may be applied to the cutting of hay into chaff, as with care not a particle ought to be lost, and especially with hay of an indifferent quality; it helps to get quit of the mildew dust, which is highly detrimental to the health of the animal. It enables you to use a mixture of malt dust, of which sheep are particularly fond, and you thus are able to consume a part of your produce which otherwise would be almost useless. With regard to feeding stuffs, I certainly prefer linseed cake to all others, as being perfectly safe, not only producing flesh and fat, but it acts upon the system generally—acting upon the bowels and digestive organs (from whence all its ailments spring) in a slightly aperient form, and producing a natural and healthy flow of the blood. It is also of great importance to the flock-master to have some slight knowledge of the ailments to which the sheep is liable, to enable him to treat in its first stage anything of the kind that may occur; above all others, that which for some years past has been so detrimental to the interests of the farmer, but which is happily becoming less prevalent, viz., the lameness or foot-rot, seems to me to be less understood than any other. Of the many compositions which I have met with, I have never found anything to entirely remedy the evil. I think that the error which we fall into is, that we try to get rid of the effects without ascertaining the cause. If an animal affected with this complaint be thoroughly examined, it will be found in a high state of fever. This impressed me with the idea that before appl ing anything of a caustic nature to the part affected some aperient medicine should be used. I have therefore tried Glauber salts in small doses of three ounces, with very great success, having for the last two years had very little to complain of."—*Mark Lane Express, Nov.* 26.

From the Globe.

CANADIAN PLOUGHS AT PARIS.

In the following note from Mr. McDougall, of the *Agriculturist,* we learn that one of the Canadian ploughs which ranked so high in the trial at Trappes, may be seen at the establishment of Messrs. McIntosh & Walton, of this city. Our agricultural readers will no doubt feel sufficient interest in the matter, to "call and examine for themselves."

Millbank Farm, Yonge Street, Dec. 17th, 1855.

To the Editor of the Globe.

SIR,—You will probably remember introducing me, at Cobourg, to Mr. Bingham, of Norwichville, C. W., the inventor and proprietor of one of the Canadian ploughs, that attracted so much attention at the Paris Exhibition. Mr. Bingham's plough obtained the second prize at Cobourg (that of Mr. Modeland, of Brampton, carrying off the first,) but as the competing ploughs were not tested *in the field,* the award will not have much weight with practical men. A man must walk between the plough-stilts, not for a few minutes, but for hours, before he can pronounce with confidence on the

merits of a plough. The difficulty is increased when the *relative* merits of several are to be decided on, which, to the eye, may appear equally well constructed. And even then, the opinion of the *team*, as expressed for them by the dynamometer, is necessary to a correct decision.

Mr. Bingham's plough was an object of considerable interest to several intelligent farmers from this part of the country, and as it seemed well adapted for our stiff soils, I advised Mr. Bingham to send specimens to Toronto for exhibition and trial. He has acted upon the suggestion, for two of his ploughs may now be seen at McIntosh & Walton's Implement establishment, corner of Yonge and Adelaide Streets. One is addressed to me for the purpose of trial, and as it is fitted with Mr. Bingham's ingenious screw clevis, (the other has only the common attachments,) I shall leave it for a few weeks with Messrs. M. & W., for the benefit of those farmers who may wish to examine it. I shall endeavor before spring to procure a dynamometer, and, as soon as the frost leaves the ground, subject Mr. B.'s plough to a fair test in the field. Possibly others may be tested at the same time, in which case notice will be given in the *Agriculturist*.

As you expressed much interest in Mr. B. and his invention, perhaps you will permit me to extract the following passage from an intelligent and discriminating notice of the trial of ploughs at Trappes, by Mons. Victor Borie, in the French "*Journal d'Agriculture Pratique*." After describing at some length the peculiarities and performances of the French, Belgian, English and other ploughs, (thirty having been entered for competition,) he concludes with the following in reference to Canada:—"The ploughing tests were brought to a close by a trial of two ploughs equally remarkable—to wit, the plough of Ransom & Simms, of Suffolk, England, and that of Bingham, of Norwich, Upper Canada. The first is entirely of wood and iron, like all the English ploughs, and the results which it produced seemed most satisfactory, but it appeared to require a little more draught than the Howard plough. Bingham's plough very much resembles the English plough; it is very fine and light in its build; the handles are longer than ordinary, which makes the plough much more easy to manage. The opinion of the French laborers and workmen who were there, appeared on the whole very favorable to this plough." I am, Yours, &c.,

WM. McDOUGALL.

THE FIRESIDE.

When the snow-flakes softly rustle
On the darkened window pane,
And the night-winds moan and murmur
In a wild and fitful strain—
Oh! how welcome is the cheerful,
Brightly burning, ruddy light,
Glowing from the evening fireside,
Glowing, sparkling, warm and bright!

How the mellow beams are dancing
On the ceiling, in the hall,
E'en within the heart's dark corners,
With a gentle glance they fall.
And in the clear and pleasant radiance,
As in the waves of gold it plays,
Melts the soul that's filled with sadness.
Lights the eye with radiant rays.

Loved ones meet around the fireside,
Through the dreary winter eve,
Whilst the storm without is wildest,
Tales of other days to weave,
Songs that to the heart are dearest,
Breathe upon the hallowed air,
Voices gay in mirth are mingled,
"Household words" are sweetest there.

How the aged and the weary
Look back to the happy hearth,
By whose merry light they sported,
Ere they tasted aught but mirth,
Though the glow has long been faded.
Brighter than of yore it burns,
When the spirit, worn with wandering
To that cherished vision turns.

Then while falling snow-flakes rustle
On the darkened window-pane,
Let us gather round the fireside,
Heedless of the night wind's reign.
And when life's cold winter cometh,
'Mid the darkness and the storm,
We'll again in memory's chamber
Meet around the fireside warm.

EDITORIAL MISCELLANY.

Illustrated Annual Register of Rural Affairs, &c., for 1856. *L. Tucker & Son, Albany. Price* 25 *cents.*

We omitted to notice this useful little work in our December number. It is justly entitled to an early notice, and we regret the oversight. Like all the publications from the office of friend Tucker, the "Annual" is neatly printed, practical in its contents, and well worth the price asked for it. Besides an Almanac, it contains 100 pages of useful and interesting agricultural and horticultural matter, very fully and tastefully illustrated. We commend it to Canadian readers.

Rural Annual and Horticultural Directory. James Vick, Rochester, N. Y., 1856. *Price* 25 *cents.*

This is a very useful manual for the orchardist and fruit-grower. It contains directions for preparing the soil, planting, pruniug, &c. with numerous engravings. Also, a list of fruits recommended by the Am. Pomological, and several State Societies. We intend to draw upon its pages in future numbers for our horticultural department.

Transactions of the N. Y. State Agricultural Society, 1854.

We have to acknowledge the receipt, from the excellent Secretary of the N. Y. State Agricultural Society, B. P. Johnson, Esq., of the fourteenth volume of its "Transactions." It contains, as usual, matter interesting and useful to the tiller of the soil wherever he may be located. We shall make free use of the volume in future numbers, and in the meantime, beg to thank Col. Johnson for his attention.

New York Horticulturist Review, C. Reagles, Editor, monthly, $2 per annum.

From a hasty examination of the December number of this magazine, (cannot the publishers send us Nos. 1 and 2?) we are disposed to think it a valuable addition to the horticultural press. It is well printed, on excellent paper, and very fully illustrated. We notice a few gross typographical errors in the number before us, which ought not to be allowed in a work so tastefully got up in other respects as this.

Hay Caps.—We have received from G. W. Baker, Esq., of Ottawa, a copy of a letter by Mr. Edward Clark, of Massachusetts, describing the method of making and using canvass hay caps, with a request to insert it in the *Agriculturist.* We shall endeavour to find room for it in our next issue.

Seedling Potatoes.—The Rev. C. E. Goodrich of Utica, N. Y. from whom we obtained last spring, upwards of 30 varieties of seedling potatoes, has very politely sent a detailed statement of their quality, yield, hardiness, &c. &c. as evidenced by the past season's culture. The quantity of each sort sent to us was too small to enable us to judge decisively, as to their respective merits, but on comparing notes we find those varieties which did well in the valley of the Mohawk, also promise to be worthy of cultivation in Canada. We shall plant 10 or 12 of the most promising varieties next season, and will after another year's trial be better able to speak of their merits.

We regret to learn that Mr. Goodrich's health has been very indifferent since he wrote to us in the spring. As a close observer of its habits and peculiarities, and as a practical experimenter upon the potatoe plant, he has no equal on this continent, and we hope he may be long spared to continue his investigations.

To Correspondents.—The communication of H. Moyle, Esq., and also an extract from that of Sheriff Treadwell, which have been given to the printer, are deferred for want of space. They will be equally interesting in the February number.

Good Printing.—We direct attention to the advertisement of Messrs. Farrell & Jacques, Printers, Designers, &c. The splendid show bill which we have sent over the country is from their press, and is a good specimen of their work.

Advertisements.—As we intend to devote a limited space to advertisements, those who first

apply will be first served. The *Agriculturist* has a larger circulation among the farmers of Canada, Nova Scotia and New Brunswick than any other journal, and is undoubtedly the best medium for advertisements intended for their eye. Terms,—6d. per line, each insertion.

AGENTS WANTED!—Local Agents for this paper are wanted to canvass every township in Upper Canada. The Eastern Townships L. C. and the Provinces of Nova Scotia and New Brunswick. Active young men who can furnish surety will find this a good opportunity to make $2 or $4 per day. Apply immediately to the publishers.

SHORT HORNS FOR SALE.—We can confidently recommend such persons as are in want of superior Durham Stock to Mr. Chapman's advertisement on another page. Mr. Chapman is a distinguished breeder and a thoroughly honorable minded man; he has on several occasions sold stock in this Province, which has given entire satisfaction.

PLEASE PAY UP.—We are under the necessity of again complaining that several Societies have not paid for the last volume. Whose fault is this? Our terms have always been in *advance*, but to meet the wishes of some Societies, we have allowed their accounts to stand over till after the receipt of the Government Grant. That *ought* to have been received months since, and we *ought* to have been paid.

TORONTO MARKETS.

December 29.

The supply of farmers' produce, during the last month, has been much smaller than that of the same month of previous years. To account for this deficiency, some say that the high prices that have been so freely paid for the last six months has brought out all the surplus produce within the vicinity of Toronto, and that unless the good sleighing that now prevails will cause the farmers further back in the country to bring out their produce, exorbitant prices, and even a scarcity, may be expected. The demand for all the products of the farm was never greater, there being large additions to the usual population of the city in consequence of the removal of the seat of government.

FLOUR.—Among wholesale dealers there is but little business going on, and probably there will be no buying until the opening of navigation. The price of flour by retail on the market, ranges from $8 to $8½, and farmer's flour sells readily at those figures.

WHEAT.—As is usual at this period of the year, there is a great dullness on the wheat market. The supply is exceedingly small, averaging about 500 bushels per day. The demand is mainly confined to city milling, but where good samples are offered, it is stored on vessels laid up, and is intended, if prices are favourable at the opening of the navigation, for export to New York or Boston. There is no competition on the market, and the price fluctuates but little. For the past two weeks, the usual price paid has varied from 8s. 9d. to 9s. per bushel.

OATS.—During the fall, upwards of 20,000 bushels of oats were imported from the States to this port. This, with a good supply from farmers, has kept prices down. Stocks now, however, are diminishing, and prices have an upward tendency. Sales on the market are made at 2s. 7d. a 2s. 10d. per bushel, and some prime lots have brought 3s.

HAY.—Good qualities of hay have been in poor supply, and prices remain high. There is a good supply of poorly-cured and inferior hay, which does not move off very rapidly. The price for the last ranges from $25 to $29, and for inferior, from $18 $25.

POTATOES.—The last crop of potatoes, contrary to the general expectation, appears to have turned out very poorly; and nothing like the supply and quality of last year is now brought on to the market. Last spring, about 1,500 bushels were sent from this port to American cities; next spring we will have to import. The price paid on the market, ranges from 4s. to 5s. per bushel, and they are sometimes difficult to be bought at even the outside figure.

PORK.—There is a good supply of very fine pork. The demand, although limited to city consumption, is very great, and high figures continue to be paid. The price ranges from $6½ to 8 per 100 lbs. $8 ¼ is sometimes realized for good hogs.

BUTTER continues scarce. For fresh rolls, 1s. 4d. a 1s. 7d. per lb. is freely paid; for tub butter, by retail, 1s. 3d. a 1s. 5d. per lb.

THE

Canadian Agriculturist.

VOL. VIII.] TORONTO, FEBRUARY, 1856. [No. 2.

PREPARE YOUR FIRE-WOOD IN WINTER.

Winter is not yet over, and it may prove useful to some of our readers to turn their attention for a few minutes, to the subject of fire-wood,—one peculiarly interesting at this season of the year. The cost of fire-wood to those who are obliged to buy, in our towns and cities, and in many of our villages, is a most serious item. Unlike some other household expenses, it cannot be dispensed with. Fire-wood is as much a necessary of life in Canada, as water. If it is becoming scarce, and dear, thus early in the settlement of the country, what will it be twenty years hence? Many of those living in cities have flattered themselves with the hope that Railroads would cheapen fire-wood; but they have thus far had a contrary effect. The quantity that these roads consume is enormous, and the cost of carriage for any distance is such that it makes the price to city consumers as great as it was before.

Farmers too are beginning to appreciate the value of their wood, and as their "bush" melts away rapidly under the wasteful system heretofore pursued, they cannot but feel uneasy for the future. Economy is therefore a question of general, as well as individual interest. As we write for the agricultural class, we shall not stop to consider the case of city consumers. They, we fear, must continue to pay a high price for wood. Their only means of relief will be found in warm houses, and an economical heating and cooking apparatus. To those who are not obliged to buy their wood from others we shall offer a few suggestions.

I. If you have cleared up your farm and reserved as much timber land as you think you will need, *let none go to waste*. Use the fallen timber before you attack the standing. Cut down the dead and decaying trees before you touch those that are sound. Thin out your bush gradually; sow grass seed with a large mixture of white clover to keep out weeds, and furnish pasture to your cattle, and you will find your wood-land as profitable as any other. To those who have not yet cleared all they intend to, we would say,—stay your hand! Leave *ten* acres more wood-land than you intended, if your lot be 100 acres; and *twenty* more if it be 200. Many farmers in

the older townships would give more for ten or twenty acres of timber, could it be restored, than they have ever realized from the same quantity of cleared land.

II. *Cut and haul your wood in winter.* Much discussion has been expended on the question as to the *proper time* of cutting wood. The proper time, in our opinion, is when it can be done without interrupting the other operations of the farm. During winter the farmer enjoys a respite from field labor. His teams are idle, and he can in most cases, without any additional expense for labor, provide firewood for the year. At any other time it will impede important operations that *must* be performed in season, or loss be sustained. It can be cut and hauled *easier*, and therefore cheaper, when snow covers the ground, than at any other season. A man can load a sleigh quicker and with less effort than a waggon; a team can haul more and larger loads in a day. Low or swampy lands not accessible in summer, can often be reached by Jack Frost's bridge, built for you without charge—and you should therefore take advantage of it. Winter is the "proper" season to procure firewood.

III. *Wood should be seasoned before it is used.* It is a popular error that green wood makes a hotter and better fire than dry. It must *season* on the fire before it will burn, and all the heat required for this purpose is lost as a means of warmth. Water in the process of conversion into steam, absorbs, or renders latent 140 degrees of heat, which go up the chimney. We have seen good fires made of green wood, but we do not believe in the *economy* of seasoning wood in the fire-place. The sun will do it for nothing, and if you give him time will do it well.

IV. *Cut your wood into stove-lengths with a circular saw.* The time spent and timber wasted in chopping stove-wood will in *two* winters, if not in one, pay for a circular saw, frame &c. Those who already possess a horse-power—and many farmers do,—can easily make the attachment, and with two horses and two or three hands wood enough to last six months, can be cut in two or three days. The cost of a Saw-mill complete, except the power, is about £10, and it will last many years.

PRICE OF GUANO—QUERIES AND ANSWERS.

Mr. Editor,—

As a subscriber to your excellent paper—the new series of which is much improved in appearance—may I ask a little information, which, no doubt, you are able to supply. 1st, What kind of Guano is considered best for ordinary farm crops in Canada? Can the best kind be obtained at Toronto, or Hamilton, or at what point? What is the price per ton? I am anxious to get some of this much-lauded manure for use next spring, and shall feel obliged if you can answer the above in the February number of the *Agriculturist*.

With much respect,
I am, &c.

Trafalgar, Jan'y, 18th, 1856. T. H. C.

Remarks.—1. There are several kinds of Guano, or rather it is called by different names, corresponding with the names of the Islands from which it is obtained. We understand there is some variation in quality, but the Peruvian Guano is the principal kind in the market, and when unadulterated is unquestionably, a first-rate fertilizer. The "doctoring" of Guano is carried to such a length however, that it is very difficult to obtain it pure.—Even in England adulteration is extensively practiced, and the only security is found in purchasing from Importers of established reputation. As to the best kind for ordinary farm crops in Canada, we doubt whether any kind can be used with profit for grain crops. Hoed crops may justify its application in small quantity, though with regard to these we need further experiments. We had hoped that the Experimental Farm would have been in operation long ere this, and that the economical and manurial value of Guano, superphosphate of lime, plaster, &c. and other matters of a similar character, would have been tested in a careful manner and the results made public. We have no desire to find fault, especially as our esteemed friend, Prof. Buckland is interested, though not as we understand the matter, blameworthy. The "Farm" has been shifted from one part of the Univetsity grounds to another, two or three times; and even now there does not appear to be any certainty as to its location. We would advise the Board of Agriculture to lease a piece of ground for themselves, and expend, in experiments, the money and time now wasted on their "Journal." These will furnish something worth publishing, and the Board will thus better meet the design of their appointment, and aid the improvement of agriculture. But we are travelling away from our correspondent's queries.

2. We are not aware that Peruvian Guano, reliable as to quality, can be obtained either here or at Hamilton. Our correspondent, we think, will be obliged to order from New York, or better still, from Baltimore, the head-quarters of the Guano Agent of the Peruvian Government.

3. The price per ton of 2,240 pounds, at Baltimore, is $55. We presume almost any of our merchants would execute an order for Guano. They may import this as well as any other article. We learn from our American Exchanges that the stock of Peruvian Guano is light, and demand active. The price in England (17th Dec.) was £11 5s. sterling, equal to $54 per ton.

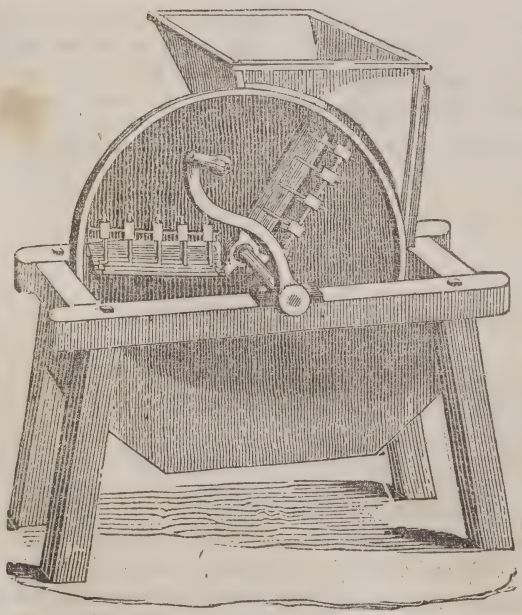
QUICK RETURN OF DEEP DRAINS.

At a recent meeting of the *London Society of Arts*, Mr. H. S. Tompson gave a very lucid illustration of the greater quickness of the deeper drain; and as his experiments throw considerable light upon the relations of air, soil and rain-water, we subjoin a condensed statement of his description:—

It has for some time been known to practical men that deep drains begin to run, after rain, sooner than shallow ones;—a fact that has engaged the attention of the scientific drainer, but seldom, if ever, fully and satisfactorily explained. Mr. Thompson, with a view of solving the phenomenon, had several glass tubes made of different lengths, filled with soil, and tested the times at which they began to drip when water was poured on the soil at the top of the tubes at the same moment. If the soil was

dry, the short tubes, which represented shallow drains, began to run first; but if water was again poured on the tubes before that previously poured on had all passed through, they began to drip again immediately that the second quantity of water was poured on, and without waiting for the water last used to pass through the soil. This was owing to the elasticity of the air confined between the free water at the bottom and that at the top of the column of earth, and in this case all the tubes, of whatever length, began to drip at the same moment. If, however, the tubes, after the first application of water, were allowed to remain some weeks, the short tubes discharged the whole of the free water, but the long ones, representing deep drained land, still retained a little free water at the bottom of the column of earth; and when water was again poured on at the top this free water was *immediately* discharged, or the deep drain began to run;—whereas the short tube, or shallow drain, having discharged all its free water, did not begin to drip for some time;—in fact, not till the water had percolated through the column of soil. This simple explanation seems fully to meet the case, and shows that there is no danger of making land too dry, as some have supposed, by deep draining. Every additional foot of earth ameliorated by the deep drain affords no less than 1200 tons of active earth per statute acre for the sustentation of plants.

VEGETABLE CUTTER.



The cut represents a very useful machine for cutting roots for cattle. In England, where roots are in more general use than in this country, machines to cut, slice, and grate them, are in much request, and no little ingenuity has been expended on their construction. They are usually made of iron; most of them are complicated and costly. The cutter, represented in the figure, is on a good principle, and can be made for about $12. The cutting wheel is made of cast iron, faced on one side, through which are inserted three knives similar to plane irons. These cut the vegetables into thin slices with great rapidity, and then cross knives operate to cut and break them into irregular pieces of convenient form and size for cattle or sheep to eat, without danger of choking. This machine will cut one bushel per minute.

PARSNIPS FOR STOCK.

Mr. Editor,—Having seen it stated that parsnips were more nutritious as food for cattle, pigs, &c., than turnips or carrots, I sowed an extra quantity in my garden last season, and had a good crop. I found that pigs have a great affection for them, for on one occasion they found the garden gate open, and passed by everything else to feed on the parsnips. They seemed crazy to get at them. Now, sir, is not this fondness a strong proof that parsnips are *good* for pigs? Instinct seldom errs in such matters. What I wish to know is, whether they are good for *fattening* as well as mere feeding purposes. Will they fatten quickly, and will the meat be of good flavour, &c.

A SUBSCRIBER.

Etobicoke, January 22nd, 1856.

Remarks.—There can be no doubt that parsnips are a nutritious as well as healthful food for stock of all kinds—cattle, horses, pigs, and even poultry. We have not tried them sufficiently for fattening purposes to speak from our own experience, but there is abundant evidence on the point from the experience of others. A good authority informs us that—"when parsnips are given to milch cows with a little hay, in the winter season, the butter is found to be of as fine a color and excellent flavor as when the animals are feeding in the best pastures. As parsnips contain six per cent. more mucilage than carrots, the difference may be sufficient to account for the superior fattening, as well as butter-making quality of the parsnip." Another observes, "that in the fattening of cattle the parsnip is found equal if not superior to the carrot, performing the business with as much expedition, and affording meat of exquisite flavor, and of a highly juicy quality; the animals eat it with much greediness. The parsnips are given in the proportion of about 30 pounds weight, morning, noon and night; the large ones being split into three or four pieces, and a little hay supplied in the intervals of these periods. The result of experiment has shown, that not only in neat cattle, but in the fattening of hogs and poultry, the animals become fat much sooner, and are more healthy than when fed with any other root or vegetable; and that, besides the meat is more sweet and delicious."

TAKE CARE OF THE LIVE STOCK.

The severity of the weather should remind the farmer of his duty to his domesticated animals. Cleanliness and shelter are quite as necessary as food, if animals are *to thrive*. It is a fact fully established by experience, and explained by science, that animals will do better with a smaller amount of food, when comfortably housed, than when exposed to the rigours of the weather, with the best and greatest amount of fodder that can be given them. When exposed a large amount of what the animal eats simply goes to sustain the natural temperature of the body, instead, as it otherwise would do, of forming muscle and fat. Hence it is the interest of the cattle feeder to provide clean, warm, and comfortable buildings for his stock, during winter. Yet how often do we see, during the most inclement weather, cattle shivering beside some miserable fence, or

corner of an open yard during the greater part of the day, or, perhaps, of the night!—It is no use getting improved animals, if they are not *properly cared for*. Protection against cold and wet; clean and dry bedding, with regular feeding and watering, are the indispensible conditions of success. The chaff or straw cutter is a most invaluable and economical machine, and ought to be in the possession of every farmer, who keeps a cow or a horse. A judicious *mixture* of food is found to he more relished by the stock, as well as more nutritious. With a laudable desire to make animals warm and comfortable, care should be taken not to over crowd them,—particularly sheep, which require for growth and health, considerable space and ventilation. The giving of roots to stock in a raw and half frozen state, is bad economy;—such food should be either *cooked*, or left to be given in *milder* weather.

THE BRITISH GRAIN HARVEST OF 1855.

We learn from various private as well as public sources of information, that the yield of wheat in the southern and central parts of England, does not upon threshing, come up to expectation. The crop was generally thought at harvest-time to be considerably above an average, it is now considered doubtful whether it will even reach that point, in some of the wheat growing districts. In other parts of the kingdom the yield seems to be more satisfactory. Very similar accounts have reached us from Ireland.

In Scotland agricultural statistics are beginning to be collected with the necessary care, and from the returns just published, we learn that sixteen out of eighty-five districts return the produce of wheat as equal if not inferior to the crop of 1854, and the remaining thirty-five districts are stated at ten per cent or more below that crop. Taking into account the character of 1854, as compared with the average of years, we should imagine the Scottish yield of wheat for 1855, to be not much below the crop in ordinary years.

From these facts, and the general state of Europe, it appears pretty evident that there can be no great giving way of the present range of prices before another harvest. Very much will depend on the yield of next harvest and the prospect of peace. Throughout the British islands every effort has been made to put the greatest possible breadth of wheat under cultivation, during the late fall. And we learn from private letters that in some of the southern counties, wheat-sowing was only stopped by the rather severe frost which occurred just before Christmas.

We think, therefore, our farmers will do well to thrash out their wheat and bring it freely to market as the spring appoaches. The loss by vermin of keeping it long in the barn in an unthrashed state, is often serious, and prices have some time past reached a point that renders the raising of wheat—as well, indeed, of most other agricultural products,—highly remunerating. A more abundant harvest, especially if accompanied by peace, will no doubt materially reduce the existing range of prices,—but we anticipate no state of things for the future, that can possibly bring down the value of

grain generally, to the low level which previously was obtained in Canada. A new and most important era has undoubtedly commenced in Canadian farming, which it will be the duty and interest of the owners and cultivators of our free and productive soil to sustain and advance. The times of unremunerating prices, and that short-sighted niggardly economy, are we trust and believe past forever. Henceforth our soil will yield an ample return for enlightened and liberal treatment.

AWARDS AT AGRICULTURAL SHOWS.

The Committee on Machinery, Implements, &c., at the last New York State Fair, presented a Report which might well serve as a model for Committees or Judges, at our Provincial Exhibitions. They gave each article deemed worthy of it, a special notice, stating its uses, name of exhibitor, and their opinion of its merits. Information of this kind from a committee of shrewd, practical men, who cannot be suspected of partiality through interest, must be invaluable to the public. To award the 1st prize to A.'s Threshing Machine, or B.'s Plough, conveys little information to the public, unless they are also told *why*. We consider that more than half the benefit of our Agricultural Exhibitions is lost to the country, from the hurried, unexplained awards upon the merits of the competing articles.

The following items from the Report of the Implement Committee of the N. Y. State Fair for 1855, are copied for two reasons,—1st, for the information of readers generally,—2nd, as an example for the benefit of Judges at *our* shows particularly:—

"The most gratifying feature presented, was the unprecedented display of machinery and implements of every description, adapted to every variety of labor. It seemed as if "invention" was let loose upon the world, as the pioneer in every industrial pursuit.

"In this, as in every other effort of the human mind, there is something which may prove abortive. Yet it indicates a strong persuasion that the world is full of secrets of high moment to man, and a conviction that the spirit of inquiry, by the observation of facts, may arrive at important results in agricultural and mechanical pursuits.

"The exhibition was well calculated to instruct all classes, demonstrating to them the progress made in every department of industry; showing them the necessity of keeping up with the age, of taking advantage of every facility offered in improved implements, and in improved modes of agriculture, of maintaining the prestige of position with all, in all the pursuits of life.

"In pursuing the examination, we find it necessary to be extremely cautious to discriminate between the different things offered as "improvements." The world is full of new inventions, possessing superior merits, if we believe their authors and vendors. We find some of these offered for competition, exhibiting real worth, and calculated to facilitate labor; others worthless, "made to sell." To the cautious discriminating mind, the subject presents itself in all its practical phases; it selects and uses such as will aid in business. It is ever careful not through extreme caution to lag behind the times, or through undue zeal to become the dupe of imposition!

"The exhibition presented an opportunity for all to inspect these inventions, for the farmer to examine them, for their exhibitors to explain their use and value. It was a coming together of vendors and purchasers for mutual introduction and for mutual advantage.

"1. One of the most useful and efficient machines presented for competition, and which is calculated to revolutionize the whole process of the "Cooper's Trade," is 'TRAPP'S PATENT BARREL MACHINERY,' exhibited by the Elmira Barrel Machine Manufacturing Company. This machine takes the timber in the bolt, saws the staves, hollowing with the grain; cuts them all of equal length; planes both sides smoothly; joints them, giving each stave its proper proportion of bilge; bevels, cuts the crease, turn the head and prepares the barrel for hooping, in a manner perfect and of the highest finish. With selected timber this machine cannot make an imperfect article, as the staves are all made of uniform thickness, are jointed accurate and true from one end to the other, ensuring casks that are tight, strong, of equal weight and capacity.

"The machine is so arranged that it can be guaged to manufacture barrels or kegs, of any size. It takes the stock in the rough, and turns out the work ready for hooping, at the rate of from seventy to one hundred barrels per day, according to their finish, reducing the cost of manufacture very materially. In view of its utility we award a Diploma and Notice.

"2. 'PRATT'S DITCH DIGGER,' the committee consider 'the most valuable machine or implement for the farmer, either newly invented or an improvement of any one in use,' offered for competition, and award it the Society's diploma and Silver Medal.

"3. 'PRATT'S TILE AND BRICK MACHINE,' the Committee deem to be the best improved tile machine entered for competition, and award it the Society's Silver medal.

(The descriptions of these machines—Digger and Tile Machine, are omitted here, as we have not the cuts.)

"4. 'GIBBS'S PATENT PLOW GRINDER AND POLISHER,' exhibited by J. Gibbs, Canton, Ohio, is a valuable invention affording ease and dispatch in grinding and polishing plow castings, inducing the plow maker to depart from the old plan of selling rough work, and freeing the plowman from days of drudgery, before his plow is in a condition to do good service. It is a machine that every plow manufacturer should have who seeks to have public patronage: award a Diploma.

"5. 'BRAMBLE'S AUTOMATIC GRAIN SCALES,' exhibited by S. G. Milligan & Co., Buffalo, is awarded a Diploma.

"The Automatic Scales is adapted to flouring mills and forwarding houses. It receives the grain, weighs, registers and discharges it, and at the same time re-adjusts itself. All the power required is the gravity of the grain. The machine is a moveable drum on a common platform scale: there seems to be nothing complicated about it.

"The smallest machine will weigh one bushel at a draught, and five draughts per minute; the largest fifty bushels per minute. We deem it a useful invention.

"15. No simple invention has, probably, produced more efficient results than that found in 'DEITZ'S PATENT ANGULAR HAME.' It is so constructed as to fit the anatomical outline of the shoulder of the horse, and confines the draught entirely upon that point of the shoulder where the horse can exert the greatest strength in drawing: award a Diploma.

"16. 'PATENT FARM OR ROAD GATE,' exhibited by C. Winegar, of Cayuga county, is very convenient for passing through without stopping to open or shut, as this is done by simply touching a lever (in approaching the gate) to open it, and another, (after having passed through the gate) to shut it. It is so constructed as to keep in order through all seasons of the year: award a Diploma.

"17. 'LUM'S SELF ACTING GATE,' is so arranged that in driving through in a carriage, the carriage wheel passes over an iron lever, as it approaches the gate, and opens it, and in leaving the gate, over another lever, and shuts it. It is evidently a summer gate and not a winter gate.

"18. 'THE DRAINING TILE AND PIPE,' exhibited by John B. Dixon, of Geneva, is deemed the best entered for competition, and is awarded a premium of $5.

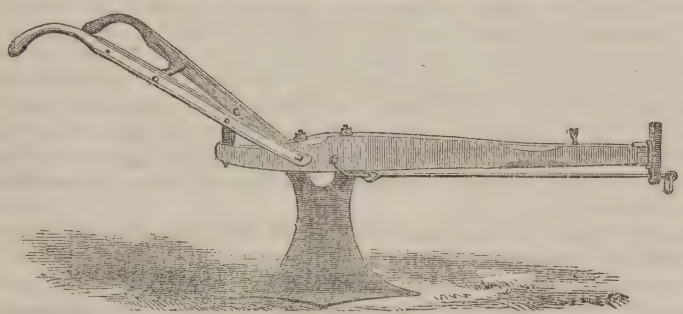
"The attention of farmers being directed more recently to the subject of ditching and draining lands, the committee subjoin the prices for pipe and tile as furnished by Mr. Dixon. It is sold per 1000 pieces, as follows:—Pipe, 1½ inch $9, 2 inch $10, 2½ inch $12 50, 3 inch $15, 4 inch $40, 8 inch $80. Horse Shoe Tile, 2 inch $9, 3 inch $11 50, 4 inch $13 50, 5 inch $17 50, 6 inch $25. 13½ pieces will lay 1 rod.

"19. Samples of 'STONE PIPE FOR DRAINS, GAS AND SEWERAGE,' exhibited by E. & D. Fosdick & Co., of Middleburg, Ohio. This pipe is glass, glazed on the inside, and will not, therefore, alter the chemical properties of the water or gas passing through it. It is capable of standing great pressure, and well calculated for use in drains, reservoirs, and for hydraulic purposes generally: awarded a Diploma.

"For the information of farmers, &c., we subjoin the price per foot for which the pipe is furnished, viz: 1 inch, 7 cents; 1¼ inch, 7¼ cents; 1½ inch, 9¼ cents; 2 inches, 12½ cents; 2¼ inches, 16 cents; 3 inches, 20 cents; 4 inches, 28 cents."

Many other machines are spoken of in similar terms; but we have copied those most interesting to the farmer.

REVERSIBLE SUBSOIL PLOUGH.



The above is an illustration of a new subsoil plough got up by Ruggles, Nourse, and Mason, of Boston, upon the recommendation of Professor Mapes, Editor of the *Working Farmer*. It is a double-winged plough, with an inclined plane on each side. It has a heavy cast iron body part or standard, which is secured to the beam by bolts, front and rear. The lower part of the body terminates fore and aft, in a two-winged share or point, the wings or inclined planes on each side moderately rising from said points, meeting centre-ways of the body, at a slight altitude above the base of the plough. When the front end or point has become too much worn to be effective, the body part may be loosened from the beam, turned end for end, and attached again, thus reversing the point.

The inclined planes rising gradually and to but a slight elevation, the draught of the plough is quite light, as compared with subsoil ploughs of other construction, while at the same time the lower soil is loosened and disintegrated. Where the object is to merely open and loosen the subsoil, without bringing it to the surface, this plough will be found useful. We have not seen it used, but from the accounts of its performance in the American journals, it seems to give satisfaction. The price is from $8 to $10.

WINTER MANAGEMENT OF SHEEP.

In the U.S. Patent Office Report for 1854, there is a valuable article on the "History and Management of the Merino Sheep," by Geo. Campbell, Esq., of Westminster, Vt., from which we extract the following remarks on the winter management of sheep, which will be read with interest:

"Much of the success of the wool-grower depends upon the winter management of his flock. Sheep are animals which pay their owners better for good care and keeping than any other stock usually kept on a farm; but if fed with a stingy hand, or neglected, if suitable conveniences are wanting, they pay perhaps as poorly as any. The annual loss to the United States, resulting from the want of suitable sheds and other conveniences for the winter accommodation of sheep, is immense. The promptings of self-interest would seem sufficient to induce our farmers to adopt a better system of winter management. No intelligent farmer at this day will attempt to deny that warm enclosures are an equivalent to a certain extent, for food; a variety of well-conducted experiments have conclusively demonstrated the fact. A large proportion of food consumed in winter is required for keeping up the animal heat, and consequently, in proportion as the apartments are warm, within certain limits, the less amount of food will be required. The other extreme, too close apartments, would be objectionable from the impurity of the air, and should be avoided. Sheep have very little reason to fear injury from the cause. The majority of those in our State suffer for the want of shelter, and a suitable quantity and variety in their winter food. Many flocks are brought to their winter quarters in fair condition, but are fed so sparingly that the growth of their wool is almost wholly arrested during the winter season, the fodder given them being only sufficient to sustain the vital functions. Under such circumstances the food consumed by them is in fact nearly lost. The owner has received no return in the increase of wool nor in bodily weight; and he will suffer further from a large per cent. of actual deaths before the time of shearing.

With such a course of management the profits of wool-growing will necessarily be small. If neither self-interest nor the feelings of humanity will induce the farmer to provide properly for his dependent flock, he will find it for his advantge to keep some other domestic animal, and I know of nothing more suitable for such men than the hardy goat. While I protest against the starving system, it would seem hardly necessary to caution farmers against the opposite extreme, too high feeding, which is also detrimental to the health and long life of the animal. While preparing sheep for the butcher, high feeding is necessary and proper, but for store sheep and breeding ewes an over amount of fat, produced by high-keeping, is decidedly injurious; and aside from the attending expense to produce this state of things, it has a tendency to shorten the lives of the sheep and enfeeble the offspring. The forcing system of feeding brings animals to maturity early, but is productive of premature death.

The proper and most profitable mode of feeding, for breeding and store sheep, is that which will develop in them the highest degree of bodily vigor. Sheep fed in this manner would endure the fatigue of a long journey, while those high fed would fail from the excess of fat, and the scanty fed from muscular debility. Every wool-grower will find it for his interest to provide warm, capacious, and well ventilated sheds for his flocks, with a convenient access to pure water. The feeding racks should be made with good tight bottoms, in order that the chaff and seed, the most valuable part of the hay, may not be lost. Such racks will also answer for feeding out roots and grain, and will avoid the necessity of having an extra lot of troughs for that purpose.

The different ages and classes of sheep should be properly assorted. This classification, however, must be left to the judgment of the breeder. The size of his flock and his conveniences for keeping will determine the extent of the classification. It will be

necessary, in all flocks of considerable size, to place the strong and feeble in separate flocks. The breeding ewes should constitute another division, and so on, with the lambs, keeping each class and age by theselves.

In regard to the question, How often should sheep be fed? a difference of opinion among good managers exists. While one believes that twice a day is sufficient, another thinks it desirable to feed three or four times; but the most important point, I apprehend, is to feed regularly, whether twice, thrice, or four times a day. The writer feeds, at present, hay twice one day; and next, hay in the morning and straw at night, and so on, giving hay and straw alternately instead of hay; and beside, a feed of roots and grain is allowed at mid-day, allowing a half bushel of corn and cob, or oatmeal mixed with two bushels of roots to the one hundred head. As sheep are fond of a variety of food, it is desirable to make as many changes as practicable. If allowed constant access to pine or hemlock boughs through the winter it will be conducive to their health. Salt is also equally as essential in winter as in summer, and should be kept constantly by them. Rock salt, which is imported in large lumps, weighing from 20 to 50 pounds each, is the cheapest and best. Sheep are not liable to eat it in sufficient quantities to ever injure them, as they can only get it by licking."

COFFEE AND COFFEE POTS.

"My dear friend," said the Doctor, holding his cup in the left hand thumb and forefinger, with the other three fingers stretched out over the rest of the table, "I never inhale the fragrance of coffee without thinking of the old-fashioned coffee-pot, or 'Madame Follet,' as dear Miss Bremer used to call it. Do you know, sir—and I suppose you know everything—do you know, sir, there are a great many old-fashioned people in the world?"

We replied the fact was not to be disputed.

"Old-fashioned people, sir; old-fashioned people, sir; old-fashioned in dress, in speech, in politeness, in ideas, in every thing. And, sir, not long since, I had occasion to visit two old ladies, sir; I went down stairs to the basement dining-room, sir, without ceremony, sir, and there I found the antiquated virgins over their coffee, sir; and in the middle of the table there was the old-fashioned tin coffee-pot, sir, scoured as bright as sand could make it, with a great big superannuated spout, and a great broad-necked handle, sir, and a great big, broad bottom, sir, as broad, sir, as the top of the great bell-crowned hat I used to wear when I went to visit them as a spruce young buck, in the year eighteen hundred and twenty sir." Here the Doctor's spectacles fairly glistened again.

"Well, Doctor?"

"Sir," replied Doctor Bushwhacker, "there was plenty of silver, in the cup-board; plenty; great pots and coffee urns of solid metal, sir, with massive handles to match, but they were so old-fashioned as to prefer the old, scoured, broad-bottomed tin pot, sir, and with reason, too, sir."

"Give us the reason thereof, Doctor, if you please."

"Well, sir, one of the sisters apologized for the coffee pot in a still, small sort of a voice, a little cracked and chipped by constant use, and said, the reason why they drank their coffee out of that pot was *because it never seemed to taste so well out of anything else.*"

"Why not, Doctor?"

"Why not? Easily enough explained, sir; we never *make* coffee in a silver urn, and when we pour it from the vessel in which it is made into another, we lose half the

aroma, sir. Coffee is of most delicate and choice flavor, sir; very few know how to make it or to use it. The proper way to make good coffee, sir, is to roast it carefully in a cylinder over a charcoal fire, until it is a light brown color; then the cylinder should be taken off the fire and turned gently until the berries are thoroughly cooled. The best part of the aroma is dissipated, sir, by the abominable practice of turning out the coffee into an open dish so soon as it is roasted. Why, sir, any body can see that the finest part of it escapes; you can smell it, sir, in every crack and corner of the house. When cooled, it should be put into a mortar and beat to powder. A coffee-mill only cracks the grains, but a mortar pounds out the essential oil. Then, sir, put it in an old-fashioned tin coffee-pot, pour on the hot water, stand it over the fire, not too hot; let it simmer *gently*. If your fire is too hot, it will burn the coffee and spoil it. Then, sir, take Madame Follet fresh from the fire, stand her on the table, and if you want an appreciative friend, send for me!"

"What kind of coffee is the best, Doctor?"

"Mocha, sir, from Arabia Felix. The first Mocha coffee that ever reached the Land of the Free and the Home of the Brave direct, sir, came in a ship belonging to Captain Derby, of Salem, in the year 1801."

"When was coffee first used in Europe, Doctor?"

"That my learned friend, is one of the 'two or three things to suggest conversation at the tea table,' as our friends of the Home Journal have it. It is a matter of dispute, my learned friend, and it will probably be settled after the commentators have agreed upon the proper way of spelling the name of Shakespeare, Shaksper, Shagsper, or whatever you may call him."

"How early was coffee in use in the world?"

"Sherbaddin, an Arab author, asserts that the first man who drank coffee was a certain Mufti, of Aden, who lived in the ninth century of the Hegira, about the year 1500, my learned friend. So says Dr. Doran. The popular tradition is, that the superior of a Dervish community, observing the effect of coffee berries, when eaten by some goats, rendering them more lively and skittish than before, prescribed it for the brotherhood, in order to cure them of drowsiness and indolence. Dickens, in his Household Words, gives a capital account of the old coffee-houses of London. By the way, there is an account, also, in Table Traits. Here is the book.

'"Lend me thine ears."—*Shagsper*.

"'The coffee-houses of England take precedence of those of France, though the latter have more enduringly flourished. In 1652, a Greek in the service of an English Turkey merchant in London. "I have discovered his hand-bill," says Mr. Disraeli, "in which he sets forth the virtues of the coffee drink, first publiquely made and sold in England, by Pasqua Rosee, of St. Michael's Alley, Cornhill, at the sign of his own head." Mr. Peter Cunningham cites a M. S. of Oldys in his possession, in which some fuller details are given. Oldys says, "The first use of coffee in England was known in 1657, when Mr. Daniel Edwards, a Turkey merchant, brought from Smyrna to London, one Pasqua Rosee, a Ragusan youth, who prepared this drink for him every morning. But the novelty thereof drawing too much company to him, he allowed his said servant, with another of his son in-laws, to sell it publicly; and they set up the first coffee-house in London, in St. Michael's Alley, Cornhill, but they separating, Pasqu kept in the house. and he who had been his partner obtained leave to pitch a tent, and sell the liquor in St, Michael's churthyard. Aubrey, in his "Anecdotes," states that the first vender of coffee in London was one Bowman, coachman to Turkey merchant, named Hodges, who was the father-in-law of Edwards, and the partner of Pasqua, who got into difficulties, partly by his not being a freeman, and who left the country. Bowman was not only patronised, but a magnificent contribution of one thousand sixpences was presented to him, wherewith he made great improvements in his coffee-house, Bowman took an apprentice, (Paynter,) who soon learnt the mystery, and in four years set up for him-

self. The coffee-houses soon became numerous; the principal were Farres', the Rainbow, at the Inner Temple Gate, and John's, in Fuller's Rents.'

"There, sir; and now my learned friend, I must pay a visit to that charming lady, Mrs. Potiphar, who is suffering severely with a neuralgia.—*Wine Press*

From the Country Gentleman.

GAYLORD'S WHEAT CATERPILLAR.

Mr. Tucker,—Other engagements having engrossed my time for a few months past, I have been unable to examine and reply so punctually as was desirable, to several letters of inquiry respecting injurious insects, which have been received from your patrons and correspondents. Being again at leisure, I proceed to fulfil this engagement.

W. R., writing from Cobourg, Canada West, under date of August 4th, says:

"I enclose in two quills, some insects that have made great havoc among my wheat this season, which I suppose to be the Wheat-fly or midge. What I wish to know is, if those small orange-colored things in the quill marked I, are the same species as those in the quill marked II, as I find them both in the wheat. My own impression is, that the one is the *larva*, the other the *caterpillar*, which will by-and-by become the *fly*; but not having been able to satisfy myself on the matter, I take this method of consulting your superior judgment."

The insects in the first of the quills, were, as the writer supposes, the larvæ of the wheat-midge, which is so improperly called "the weevil" over a vast extent of out country. Those in the second quill, had all perished before they reached me, but their dried relicts plainly showed that they were quite a different insect from the others. In their present shrivelled state, these caterpillars are little over the tenth of an inch long, and appear to have had a solft cylindrical body, which is turned upwards posteriorly, and tapers to a point. The head is somewhat flattened, smooth and polished, and of a tawny yellow color, with a few fine bristles scattered over it and the body. The neck or second segment, is also polished on its upper side, and commencing on this segment, five dull white stripes extend the whole length of the body. One of these runs along the middle of the hack, and is edged each side with blackish; another extends along each side of the back; and the other, which is broader, is placed low down upon each side. The back, between the three upper stripes, is dull brownish yellow or tawny; the sides are black between the broad lower stripe and that along each side of the back, and the under side of the body is dull pale yellow. There are six pairs of feet, situated upon segments 2, 3, 4, 7, 8 and 9. In the quills were numerous gray and blackish grains, the castings of the worms, held slightly together by fine, cobweb-like threads, which they had spun as they crawled about in the quill.

The description given above plainly indicates that these wheat-caterpillars from Canada, are the same which have long been known in western New-York and northern Pennsylvania, our first and principal accounts of which appeared in the year 1839 in the sixth volume of the Cultivator, consisting of a communication (page 21) from Mr. Nathaniel Sill, of Warren, Pa., and a more extended article (p. 43) from the late William Gaylord. Mr. Gaylord also gave a revised account of the same worms in his "Treatise on Insects," which is published in the Transactions of the State Agricultural Society, vol. III. p. 147. We learn from the last edition of Dr. Harris's Treatise, (p. 154,) that similar worms had been brought to him from the state of Maine and also from Connecticut, and that subsequently he had himself seen them in a wheat-field in the latter state. From the description which he gives of these New-England wheat-caterpillars, they would appear to be the same as those which I have described

above, except that the number of their feet is stated to be sixteen, whereas, in the specimens before me, twelve feet are plainly perceptible, and I can discern no distinct traces of any beyond these, and this is also the number given by Mr. Gaylord. These worms must hence be regarded as widely different from those of New-England, although they are so closely alike in their stripes and colors.

It is much to be regretted that the perfect insect has never been reared from any of these wheat-caterpillars of our country, that we might know what they are more definitely. Mr. Gaylord says the worms of which he writes, move like an inch or span-worm, which we should not expect them to do with feet situated as they are in the specimens before me. If these specimens show the real structure of the caterpillars, it is evident that they belong to the small group of moths named *Platypteryx ;* although all the larvæ of that group which are at present known have one pair of feet more than we find in these worms. This group is placed in the family GEOMETRIDÆ, i. e. the span-worm moths, by Mr. WESTWOOD in his synopsis of the British genera ; but more recently (in Humphrey's British Moths) he follows Mr. Stephens in elevating it to the rank of a distinct family, named PLATYPTERICIDÆ, i. e. the broad-winged moths.

According to Mr. Gaylord, these worms feed on the kernels of the wheat, both when it is in its milky state and after it has ripened. They grow to the length of half an inch or more. When disturbed they let themselves down from the wheat-stalk by means of a fine thread which they spin. Some years they appear in great numbers, and perhaps not one of them can be found the next year ; and they will sometimes be quite numerous in one wheat-field, when an adjacent field will be exempt from them.

ASA FITCH. *Salem, N. Y. (East Greenwich P. O.) Nov.* 5, 1855.

PASSAGES FROM A FARMER'S NOTE-BOOK.

. . . . . I find it stated, at a late meeting of the Yorkshire Agr. Soc., that heads of wheat differ more than I had previously supposed as an average, in respect to the number of kernels or grains which they contain. Mr. H. S. Thompson, of Kirby Hall, presented one head as a sample of the largest sized heads, and it was found to contain seventy-nine grains. In some quite as large heads grown in 1853, and of this same kind of wheat, the number of grains only reached from twenty to thirty, and those were extremely small. The crop in which the best heads contained from twenty to eighty grains, produced rather more than five quarters (over forty bushels) to an acre. The crop of 1853, of which some equally large heads contained only twenty to thirty grains, looked equally well, and had fully as many stems as the other; but it produced only two quarters (about seventeen bushels) to an acre.

From these and similar observations which this gentleman had made he was pretty thoroughly persuaded that the great difference in the yield of different crops consisted chiefly in the number of grains in the ear ; or, in other words, that the great difference between a productive and an unproductive crop was to be found in the great difference of the number of grains in the ear.

May not a hint be taken from these observations? It seems quite probable that if those heads which contain the largest number of grains were selected out and sown by themselves we might in this way effect an improvement, or obtain seed to produce an improved and more productive kind of wheat.

. . . . . We find it stated that a certain portion of land in England which for many years had been let at a rent about equal to sixty-two cents of our currency, is now rented at a sum equal to about twelve and a half dollars. During the period in which this

land could not command any more than the lowest rental just named, it was sold at a price equal to about thirty-two dollars of U. S. currency. The present market value of this land is not stated; but if in the same proportion to the rent as formerly, its value would now be about two hundred and fifty dollars.

This very surprising increase in the value and in the rental of the land is likely to excite in some, if not incredulity, at least curiosity or inquiry as to the cause. And what was the cause of so great a rise? It consisted in the change of a blowing sand into good arable and productive soil. This change seems to have been brought about by the addition of one hundred loads of clay to each acre of the light sandy soil. While this addition of clay to sand was being carried forward many thought the proprietor was committing an expensive act of folly and madness. But any one can in a few minutes make all the calculations necessary to prove that, at ordinary rates of wages for labor, every load of this clay must have been well laid out. For the land which formerly would produce next to nothing, now produces, when in wheat, as much as forty bushels to the acre. Or each acre has been raised in value nearly two hundred and twenty dollars; and by the most liberal calculation, the addition of clay which was made could not have cost, at reasonable distances, any thing over the one half of this sum, and probably not as much as that. After allowing a wide margin for manuring afterwards, there would still remain a considerable sum to be set down as clear or net profit.

But it appears that many sandy soils in Norfolk county especially, had been rendered ordinarily fertile or productive by the addition of much smaller quantities of clay. It has been the practice of some in that county to add thirty to forty loads of clay per acre, and to repeat that in ten or twelve years. The land thus treated has in consequence, become so altered in quality that it was almost impossible for old neighbors who had moved away to recognize it again.

Whether fifty dollars could be expended to better advantage in improving an acre of light sand by the addition of clay or of muck is a question about which we find variety of opinion. Almost every one admits however, that some such amount might be laid out on some sands so as to *make it pay*. ARATOR. In *Country Gentleman*.

DRY BROTH.

Dry broth is a very useful and nutritious article. It is very common in Russia, and in other countries amid huge forests where game is scarce and fuel of great price. In traveling in that country, I came to a place where this broth was manufactured, and remained there three days for the purpose of learning the process. It is as follows:

Take half of an ox, half of a sheep, entire, ten fowls, ten partridges, and cut all these into small pieces. Place it in a copper boiler well tinned, and pour six quarts of water to one pound of flesh. Cook this in the open air, or in a basement over a moderate fire, skim it carefully, and after the soup is well cooked add some vegetables, &c., that is to say, celery, pork, parseley cut fine, and cook the whole ten hours or more, or until the soluble portions of the flesh are dissolved. Then strain the liquor through a colander. Place the residue under a press and pour what flows from it into the soup. The residue of the flesh is comparatively tasteless, and may be given to dogs, swine, &c.

The soup which has been strained, is again poured into the boiler, and made to boil moderately. It should be taken from the fire at such time as, when poured off and allowed to cool, it will become a compact mass, resembling chocolate. This moment must be determined by repeated trials. The soup should then be poured into vessels of tin or potter's ware, and suffered to remain several days. The mass is then placed in the sun or in a dry room, until it shall become dry soup.

Dry soup is prepared of different sizes, of one, three, six or twelve pounds, and is sold by weight.

It should be observed that in its composition there is no salt, nor spice. Salt has a tendency to soften and moisten it, and any spice does not suit all persons alike. Besides, the broth, being administered as soup and dissolved, would not be suitable for the sick.

This dry broth forms a very convenient kind of food for those traveling on foot or through uninhabited districts.

The Russians who make the voyage from Moscow to Kiachta, over the steppes of Siberia, scarcely use any other kind of food. A vessel holding six or eight ounces of boiling water, into which is thrown a half pound or more, according to the number of guests, seasoned with salt and pork, and with garlic if to their taste, poured upon biscuits, furnishes a nutritious, wholesome and pleasant repast. For sailors it is useful as a preventive of the scurvey. (When wrecked, should each man secure a few pounds of it they might thereby save themselves from starvation and death.) In long journeys over prairies and desert countries, it is of very great value.

This broth might be prepared with the beef and mutton, without the addition of other things. But it would not be so pleasant to the taste, nor command so high a price.—*Plough Loom and Anvil.*

BUTTER MAKING.—SWEET CREAM.

A writer in the *Ohio Farmer*, discussing the propriety of allowing cream to turn sour before it is churned, says:

"If milk be churned as soon as drawn from the cow, and butter be separated, the buttermilk will be found to contain acid, though it may not taste very sour. Whether this lactic acid is a cause or an effect of the separation of the butter, has not been satisfactorily settled; but that it is always present after butter has been churned is a well ascertained fact, and this fact all scientific books on the dairy assert. Johnson, Ballantyne, Ayton and Traill, all teach that "butter made from sweet cream is less in quantity and requires more labor to produce it, and is therefore unprofitable."

We do not quite agree with this. We cannot imagine why the presence of a minute portion of lactic acid should be presumed without evidence to promote the gathering of the butter. That should be proved ere it is put forth. We know that nice tests often discover the presence of lactic acid in *new milk*, and we have good reason for believing that the process of churning, by which the temperature of portions of the milk must be somewhat affected, should tend to increase the amount of acid. We are not satisfied that the presence of lactic acid is either the cause or the effect of the separation of the butter. Nor does the fact that sweet cream requires longer churning than sour cream, *if it be a fact*, show that it is less economical. The quickest process is not always the best. Besides, our scientific men are not the best authority on such questions. We should much prefer the opinions of judicious dairymaids. We have facts, from such sources, which we would offset against a host of mere chemists, though ever so "scientific." Ask the dairymen and women of Orange county, so widely distinguished for its good butter, and the information they would give would not strengthen the doubts which this writer suggests.

We do not believe that the presence or the absence of lactic acid can have any effect on the "quantity" of butter. The butter is there confined in sacks, and lactic acid cannot increase it, nor can butter produce lactic acid. Science cannot begin to

give a reason why it should be supposed to do so. Facts show that the best butter, the butter that with a given amount of washing will retain its sweetness the longest, is from sweet cream.

But we doubt whether sweet cream requires more labor to "produce" butter than sour cream. Each little sack must be broken, and its contents gathered. We can see how the presence of very sour milk might hasten the process of gathering or collecting the butter, after it has "come;" but this is not what the chemists mean to say; and whatever they mean, their opinion is of no more value than that of any mere professor of science, who may be fond of his own theory. Such questions are for actual practical churners to determine, who use various kinds of churns and various qualities of milk and of cream, and so far as our experience, which is not small, and our inquiries, which have been extensive, can elucidate this question, the conviction is full and complete, in our minds, that it is desirable to have sweet cream for butter that is to be kept a long time. Sour milk does not of necessity make sour butter, but the presence of sour particles in the butter made from sour cream cannot be certainly avoided by almost any amount of washing, and there may be enough present, after very frequent washings, to convert the whole, ere long, into a rancid mass. Hence we go for sweet cream.—*Ex.*

COLD FEET

Are the avenues to death of multitudes every year: it is a sign of imperfect circulation, of want of vigor of constitution. No one can be well, whose feet are habitually cold. When the blood is equally distributed to every part of the body, there is general good health. If there be less blood at any one point than is natural, there is coldness; and not only so, there must be more than is natural at some other part of the system, and there is fever, that is, unnatural heat or oppression. In the case of cold feet, the amount of blood wanting there, collects at some part of the body which happens to be the weakest, to be the least able to throw up a barricade against the in-rushing enemy. Hence, when the lungs are weakest, the extra bloodgathers there in the shape of a common cold, or spitting blood. Clergymen, other public speakers, and singers, by improper exposures often render the throat the weakest part; to such, cold feet give hoarseness or a raw burning feeling, most felt at the little hollow at the bottom of the neck. To others, again, whose bowels are weak through over-eating, or drinking spirituous liquors, cold feet gives various degrees of derangement, from common looseness up to diarrhœas or dysentary; and so we might go through the whole body, but for the present this is sufficient for illustration.

If you are well, let yourself alone. But to those whose feet are inclined to be cold we suggest,

As soon as you get up in the morning put both feet at once in a basin of cold water, so as to come half way to the ankles; keep them in half a minute in winter, a minute or two in summer, rubbing them vigorously, wipe dry, and hold to the fire, if convenient, in cold weather, until every part of the foot feels as dry as your hand, then put on your socks or stockings.

On going to bed at night, draw off your stockings and hold the feet to the fire for ten or fifteen minutes until dry, and get into bed. This is a most pleasant operation, and fully repays for the trouble of it. No one can sleep well or refreshingly with cold feet. All Indians and hunters sleep with their feet to the fire.

Never step from your bed with the naked feet on an uncarpeted floor. I have known it to be the exciting cause of months of illness.

Wear woolen, cotten or silk stockings, whichever keep your feet most comfortable; do not let the experience of another be your guide, for different persons require different articles: what is good for a person whose feet are naturally damp, cannot be good for one whose feet are always dry. The donkey who had his bag of salt lightened by swimming a river, advised his companion who was loaded down with a sack of wool to do the same, and having no more sense than a man or woman, he plunged in, and in a moment, the wool absorbed the water, increased the burden many fold, and bore him to the bottom.—[Hall's Journal of Health.

THE DIFFICULTY OF JUDGING BETWEEN FIRST-RATE ANIMALS.

The following, from the *Mark Lane Express*, may be read with profit by those acting as judges at our public fairs. The recommendation in the last paragraph may be useful to Agricultural Societies:

"Sir:—Allow me to offer a few remarks on this subject, as applicable to the approaching meetings of our leading agricultural societies, now close at hand.

"The difficulties which are often experienced by the most competent judges, in deciding between two really first-rate animals of a first-rate sort, are greater than the majority of people who have never acted in the capacity of judges have any idea of.—I am happy to say that at the meetings of the Royal Society such cases frequently do occur, and, I hope, always will, and with the wish that what I here assert may tend to assist judges on their laborious duties, I am induced to trouble you with these remarks.

"I will take an instance of two first-rate short-horned bulls, neither of them having a faulty point. Judge A. says, 'What a superb back No. 1 has!' B. says, 'But look at that depth of carcase in No. 2!' 'But the length of quarter in No. 1!' continues A.; and in return B. draws attention to the silky texture of the skin of No. 2. The The question is here put to judge C. who *should* decide the case; but he has to balance, in his mind, whether a superior back is more to be considered than extraordinary depth of carcase; and again, is a first-rate quality of hide equivalent to an unusual length of quarter? And thus points, without having some definite value attached them, might be compared one against the other *ad infinitum*, without ever coming to a satfactory conclusion.

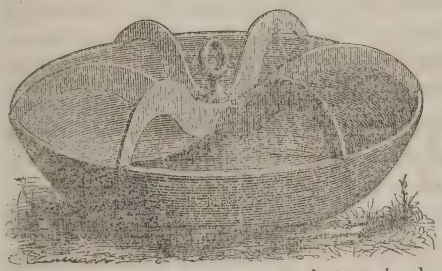
"Now, what I wish to see is, a definite value affixed to every point in the perfect animal, and when such cases of nicety as I allude to do occur, let the judges take point by point, and compare value in numbers, and then the animal commanding the highest amount would be the one selected. If the perfect animal were 50, the component parts might be something as follows:

	Bull.	Sheep.	Boar.
General Appearance, - - - -	8	12	20
Back, (length and width,) - - -	8	10	8
Chest - - - - - - -	6	4	5
Width of hips and loin, - - -	5	5	5
Depth, (rotundity of carcase,) - -	5	5	4
Quarters, - - - - - -	5	3	3
Head, - - - - - - -	4	4	9
Hide, (or wool,) - - - - -	4	5	2
Bone, - - - - - - -	3	3	2
Shortness of legs, - - - -	2	1	2
	50	50	50

"This table is merely on a rough scale; but I think if the committee of the Royal Society would devote one of their meetings to the consideration of the subject, their time would not be wasted; and a scale made under their direction, similar to the above, would be received by the agricultural public as an authentic data to refer to.

"Hoping that these remarks may draw the attention of our great stock-breeders to the subject, I remain yours, etc., X. X."

IRON PIG TROUGH.



Pig troughs, as they are commonly made, will probably continue to be used by those who are not tastely in such matters, and who have no great admiration for *new* things, which cost a little more than the old. But it must be borne in mind, that the first cost of an article, is not always its real, or full cost. Durability is an element that materially affects the question, and it may often happen that an implement, or utensil, which costs three times as much as another, intended to serve the same purpose, is yet cheapest in the end, because it lasts three times as long. Of course, where the farmer is in want of capital—perhaps is paying for his farm out of its yearly productions—he is not able to purchase high-priced implements, though convinced of their superior merits and greater economy in the end. In such cases, inferior and cheaper articles must serve, until he is rich enough to procure better. It is well known that the capitalist in every department of life, can purchase in the same market, and even the same goods, at a lower price than the poor man. But by enabling the purchaser to secure the *best* articles, as to quality and durability, wealth is always a great advantage. Happily, a large proportion of our readers in this favoured country, are, in the true sense, wealthy. They "have enough and to spare." The disbursements of the year for all the necessaries and ordinary comforts of life, are more than equalled by the receipts. There is an annual addition, small though it may be, to the accumulations of the past. *We* call such persons *wealthy*, and when engaged in agriculture, they can afford to buy the best stock, and the best implements.

This is rather a long story over a *pig-trough*, but the idea we are endeavouring to impress on the reader, is just as applicable to the subject in hand, as to any other. The cut represents an improved pig-trough, consisting of cast-iron, which is both durable and convenient. The object of the partition fixture, which can be removed by a few turns of the screw in the middle, is to prevent the swine from getting their feet into the trough, or hindering weaker ones among them from obtaining their portion of food. It will be seen that *six* can feed at this trough at once. It costs little more than a common kettle of the same weight, and in many cases will, no doubt, be found preferable to any other kind.

AGRICULTURE—PAST AND PRESENT.

A LECTURE DELIVERED BY PROF. BUCKLAND BEFORE THE TORONTO MECHANICS INSTITUTE, DEC. 21ST, 1855.—CONTINUED FROM OUR LAST.

We must now pass on from the field of classic literature, and make a few passing remarks on the condition and progress of our art in the mother country, during the middle ages. Britain was mainly indebted to her ancient conquerors, the Romans, for her first lessons in systematic agriculture, as also indeed for other civilizing arts. But soon after the retirement of that adventurous people, a blank commences in British history, and at the fall of the Empire in the early part of the fifth century, we learn that husbandry, with other useful arts had declined generally; and in Britain, the Saxons, Picts, and Scots, kept the country continually embroiled in internal wars,—the fields were ravaged, crops destroyed, and both the invaders and the invaded had to lay aside the ploughshare for the sword. The devastations of war, from the fifth to the eleventh century rendered land the least costly of all gifts, though it must ever be the most valuable and permanent. Amid the conflicts of factions and the din of war, the pursuit of letters and the arts, (among the latter agriculture occupied a foremost place,) found a retreat and a congenial atmosphere in the religious houses of that period. For despite the abuse which has been heaped upon their memory, the Monks were the sole conservators of agriculture and the other useful arts, as they unquestionably were of sound learning. Many of the grants to monasteries which strike us as enormous, were districts already wasted, which would probably have been reclaimed by no other means. We owe the agricultural instruction of the greater part of Europe to the Monks:—they chose for the sake of retirement, secluded regions, which they cultivated with the labor of their own hands. Several charters are extant, granted to convents, of lands which they had recovered from a desert condition. The monks were in fact not only the most advanced agriculturists, but the first landlords in the best acceptation of the term, connected by the ties of ecclesiastical dependance and intercourse with Rome, the seat of their supreme authority, and whatever still remained in the world of ancient art, science and literature, and employed in the transcription of manuscripts, whose language was a silent repository of knowledge to all but their own order, they kept alive the embers of past learning and civilisation, which were otherwise threatened with extinction. Traces of their agricultural skill and labor, may yet be observed in several of the richest and loveliest scenes of the British Islands.

We have drawn a very hasty and imperfect sketch of Agriculture in the past, let us proceed to glance as far as time will permit at its condition and progress during the present century. It is now about fifty years since Davy read his celebrated lectures on the relations of chemistry to the practice of husbandry, before the Board of Agriculture. That circumstance may be said to have commenced a new era in the art. Agriculture having invoked the aid of science, it became thenceforth destined to assume a higher and more definite form. It became in fact reduced to its simplest formula,—the laws which regulate the conversion of inorganic matter, through the intervention of the vegetable, into the varied forms of animal life. Chemistry pointed out the soil and the atmosphere as the only sources from which vegetable and animal structures are built up, and the laws which govern their combinations.

"Out of nearly sixty centuries which make up the history of the world, take away but the last,—I might almost say the last half century and what becomes of this great elementary science, (little even yet valued at its true importance) which dissects and

explains to us, the simple elements and constitution of all the matter we behold,—of every existing substance that we come into contact with by the aid of our bodily sense, of everything, in short, that we can touch, taste, smell or see, and of a great deal which is not cognisable by the external senses, but only by those of the mind, such as invisible gases:—where, again would be that other science, which investigates the substance of the planet on which we live and move; which, step by step, interrogates the solid rock, and chronicles its place in the history of creation, by the evidence inclosed, (not without a fore-intended purpose) in its successive layers of once living creatures, now lying in monumental forms, more real than sculptured effigies, and affording, (by the regular series they present of fossil anatomy and osteology,) a complete sketch of the rise and progress of organic forms of plant and animal, antecedent to those we now see around us. Where, again, would be that analytical history of organised matter, which explains the growth and structure of all existing forms of LIFE, containing within themselves the principle of incision and reproduction?—I allude to Chemistry, Geology, and Animal and vegetable Physiology."

It must be acknowledged that, considering the high antiquity of the agricultural art and its importance to mankind, science has done infinitely less for it, than for any other economic art of much inferior value. Many of the old rules and practices of Greece, and Rome, as we have already seen, have come down to the present day in their primitive and unimproved condition. This state of things admits of a ready solution, when it is considered that the present century may be said as having given birth to organic chemistry, at least so far as it has any clearly defined bearing upon the principles and practice of agriculture. Several tangible causes might readily be assigned to account for the comparatively slow progress of this art. One is to be found in *variety of climate*. This, which, from the earliest time, was the moving one in commerce, was a restricting and retarding one in agriculture. The easy labors of the Egyptian husbandman, when the Nile has left his fields manured and cultivated to his hand without any trouble on his part, would afford little of practical knowledge to the farmer of Bœotia, Migara and Thrace, the granaries of Greece, or of Sicily and Sardinia, the storehouses of Rome: nor would these in their turn, supply much useful or applicable information in the art, as in the progress of civilisation towards the more northern parts of Europe, the changed influence of the elements and seasons, gradually altered almost to complete reversal, every detail of husbandry practice, under the inverted preponderance of heat and cold, drought and moisture. The progress of the art was checked, as the conditions of its practice kept varying at every step.

Again differences of *soil* would be found upon smaller areas to operate against the rapid march of agricultural improvement, and of establishing the art upon a strictly scietific basis. What was applicable to one particular section of country, or indeed to one portion of a farm, would not be found suitable to another portion possessing a different soil. Altitude, or the elevation of a farm above the level of the sea, exhibits the exact effects of different latitude.

Then again the condition in the life of the agriculturist has been felt in all ages as more or less an impediment to the rapid diffusion of rural improvement. The farmer, from the very nature of his pursuit, is more or less localised and isolated, and is consequently cut off from the daily intercourse and mental activity which characterise the inhabitants of towns. The facilities, however, which railways are conferring on travelling, in diminishing vastly both the time and money consumed, is operating most favorably on the rural population and we are just beginning to partake of the advantages in Canada. Few things tend more to the improvement of agriculture, than the enabling of its followers to make extensive observations. Lord Bacon told us three centuries ago, that a science can only grow *by the observation of individual facts*. It is of tne utmost importance therefore that agriculturists should occasionally extend their observations beyond their own districts, and make themselves acquainted with the farm practices and productions of different soils and localities.

Another cause of slow progress in this art may be found in *the length of time needed for experiment*. In many arts *effects* rapidly follow their *causes*, so that many trials can be made in a short space of time. Not so however in agriculture. The farmer can usually make but a single experiment on a given subject in the course of a year, and with reference to some manures and systems of rotation, several years are required to arrive at a single result,—beside after carefully, and it may be successfully, watching a series of processes for a number of years, some unforeseen and equally uncontrolable change takes place in the season, or a destructive visitation of insects, before the experiment is concluded, which render the whole proceedings of little worth. How different is the condition of the manufacturer, who conducts his operations with rapidity and certainty; and protected from, what to the farmer is so often a source of difficulty and failure, the fickleness of the weather. A Newton, a Columbus, a Harvey, a Watt, a Davy, or an Arkwright, might each, in a single life, revolutionise the whole structure of the art or science which formed the subject of his particular genius; but it was scarcely within the compass of a single mind to achieve discoveries of a corresponding magnitude in an art like agriculture, whose experiments reach over periods which exhaust human life in their development, and refer nearly to the whole catalogue of the sciences for the principles on which they depend."

(*To be concluded in our next.*)

Fluke Potatoes.—The Rural New-Yorker says, "Some of these potatoes were distributed from the Patent Office, last spring, and through the politeness of B. P. Johnson, Esq., several were received at this office. It is an English variety, and is much esteemed at Liverpool for its flat shape, fine quality for the table, and its long keeping. The writer planted one of the smaller specimens, and raised therefrom one dozen medium sized potatoes, of fine appearance. It was planted whole, and on a poor, sandy knoll, first plowed last spring. We are inclined to think it will prove a valuable variety."

Galloway Cattle.—We perceive that these superior cattle for beef, were exhibited at the Fair in Canada West, and that quite a number of them are owned in Canada. We trust some of our enterprizing farmers will introduce them into our State, as there can be no doubt of their proving very valuable in the northern districts of our State, and that they will give us beef that will astonish some people who have never witnessed the choice marbled beef from the Galloway.—*Trans. N. Y. State Ag. Society.*

Corns.—Soak the feet in warm water, pare off as much as possible of the horny part of the corn, then lay upon it a moistened wafer, and again upon this a piece of buckskin, with a hole cut through it the size of the corn. Renew the moist wafer twice a day, and in a very few days the corn will work out. This cure is complete.

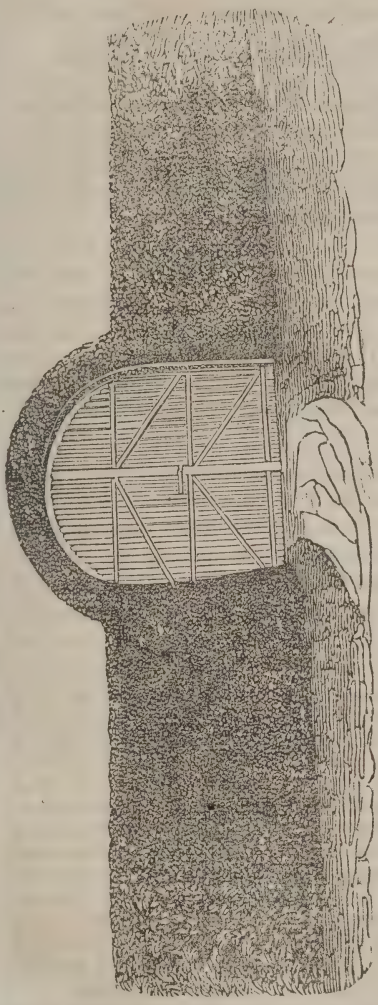
Cashmere Goats.—Dr. J. B. Davis, of South Carolina, has recently sold 15 three-fourth bred Cashmere kids, seven months old; and one two years old pure bred buck, for $4,000, to a gentleman in Tennessee. The buck for $1,000; the ewes at $2,000 each."

Wooden Shoes.—In the French army, the soldiers, during the winter, wear wooden shoes. The result is, that the French army is less afflicted with toothache and rheumatism than any army in the world. A wooden-bottom shoe is always dry.

Nursery Pudding.—Slice some white bread, without crust; pour scalding milk on it; let it stand until well soaked, then beat it well with four eggs, a little sugar and grated nutmeg. Bake in small cups half filled.

To Cure Broken Horns.—Remove the mutilated horn, and bind the stump with a cloth well tarred or pitched; any fabric will do to bind with, if the wounded part be first well covered with warm pitch.

LIVE FENCES.—THE OSAGE ORANGE.



We are glad to find that the hedge-plant, called Osage Orange, or *Maclura*, has been introduced into Canada, and that from the experience of two winters, it promises to thrive sufficiently for the purpose of a hedge. In the south-west, where it was found growing spontaneously, it obtains the dimensions of a tree, but as it is carried north, it diminishes to the size of a bush or shrub suitable for fencing. In the North-Western States thousands of miles have already been planted. It is regarded as a *God-send* by the inhabitants of the great timberless, stoneless prairies. The English white thorn has been tried in several parts of Canada, but so far as we can learn, it does not give satisfaction. It is too long coming to maturity, demands too much labor, is tender, and liable to be destroyed by mice and insects. We cannot learn that any thorough, properly conducted experiment has ever been made with the common thorn of the country, as a hedge plant. If any of our readers have tried it, they will much oblige us and confer a public benefit, by communicating the result of their experiments. That we shall need live fences in Canada—at a period not far distant either, is but too evident. Fencing timber is even now a very expensive item in many parts of the country, and every year, the matter becomes worse.

The Osage Orange has been cultivated for two or three years by Mr. T. B. Fraser, of Georgetown Esquesing. He is now importing the plants for sale, and will be able to supply a few thousand next season. Mr. James Petch, of Chinguacousy, John S. Fraser, of Esquesing, and several others, of the same township, certify that they have had plants exposed during the winters of 1854 and 1855 without injury from frost. We have no doubt that a plant which endures the climate of Ohio, Michigan, &c., will flourish equally well in the western part of Canada. We shall publish directions for its cultivation, &c. in our next number, and hope some of our enterprising farmers will commence a hedge of sufficient extent to test its merits. The cut represents the Maclura when trimmed into a neat fence.

Buckwheat Porridge.—Take a quart of rich milk, and after boiling it hard, stir in as much buck-wheat meal as will make it of the consistency of thick mush, adding one teaspoonful of salt and a tablespoonful of fresh butter. In five minutes after it is thick enough to take from the fire. If the milk is boiling hard and continues to boil while the meal is being stirred in, very little more cooking will be required. It should be placed on the table hot, and eaten with butter and sugar, or with molasses and butter. This is sometimes called a five minute pudding; it is excellent for children as a plain dessert, or for supper. Some add a seasoning of ginger or grated nutmeg before sending it to the table.

PROPOSAL TO BRING OUT AGRICULTURAL LABORERS FROM ENGLAND.

Sheep Walk, Brantford, Dec. 15, 1855.

Sir Allan,

As a Canadian Farmer and Member of our Provincial Agricultural Society, I address you as Chief Minister in Her Majesty's Canadian Government, to urge on your consideration the important fact that the success of Canadian Farmers in the production of wheat at this eventful period, will very much depend on the assistance given by our Government to aid in the emigration of Agricultural labourers in the ensuing summer.

It will be recollected that during the last harvest, labour could not, in many cases, be obtained at any price, and the breadth of land sown with wheat has consequently been less than usual; from a concurrence of various causes high prices are inevitable, and the supplies that will be required from Canada will become of great importance in England. Exactly similar results occurred during the last war, when the chief ports of Europe were closed against England. This fact left an impression on my mind, having been at that time the Land Agent of the late Marquis of Anglesea's estates, when the gallant General lost his leg at Waterloo.

There can be no doubt but the general introduction of horse-power Reapers and Mowers will in a few years materially affect the labour market and render a continuance of any emigration scheme unnecessary; but it will require two or three years before these machines will become general, improvements being constantly suggested. The present high prices of farm produce have induced a great many labourers to take up lands for themselves, and very many more intend to do so in the ensuing spring, so that the difficulties of last summer will again recur in 1856, aggravated by an organization, said to be already understood, to obtain their own terms. I was prevented attending the Cobourg meeting by our Assizes, but sent an outline of my suggestions to our Secretary: from my own knowledge of the localities to which I have referred in the letter alluded to, I am aware that men of the description desired can be procured, and as I have some intention of visiting England on business of my own in the ensuing spring, if health permit, I shall be willing, if requested, to make a selection of the first shipment, and will also, as before stated, select some good Shepherds and Flax managers. The former are indeed most important, although not appreciated, because, as Flock-masters, the capabilities of their farms are not practically understood. Our Presidents and Directors are indeed fine speech makers and theorists, but where is the man who can refer to his own experience in a well managed flock of one thousand sheep,—except perhaps our worthy Secretary. The day is not far distant when it will be found by Canadian Farmers, however good our land for wheat, we cannot continue to grow good crops and good samples without the aid of sheep's manure, and other benefits particularly known to result from the sheep stock in the production of the best samples. It is an old maxim, often learned too late, that over-cropped land is never remunerative, and the samples are sure to deteriorate.

I have only to add, to show the probability of being assisted by some of the chief landed proprietors in England in an effort so mutually desirable at this time, the section of country from whence the proposed emigration is partly intended to be drawn, is owned by the Earl of Shaftesbury, as chief proprietor, with some exceptions. I was for many years a tenant of the Earl, and appointed by the late Earl one of the Comissioners for the division of an extensive tract, known as "the Damuham Inclosure Act," in the Imperial Statutes.

In some of the Parishes alluded to, the labours of several excellent Clergymen, introduced by the late and present Earls to benefices in their presentation, have in many cases produced a delightful change in the rural population. Such men and women as alluded to, would indeed be valued as emigrants and settlers in any country.

I have the honour to be,
Sir Allan,
Your obedient humble Servant,
Henry Moyle.

Hon'ble Sir Allan Macnab.

DOMESTIC RECIPES.

Indian Muffins.—A pint and a half of yellow Indian meal sifted. A handful of wheat flour. A quarter of a pound of fresh butter. A quart of milk. Four fresh eggs. A very small teaspoonful of salt. Put the milk into a saucepan. Cut the butter into it. Set over the fire and warm it until the butter is very soft, but not until it melts. Then take it off, Stir it well till all is mixed, and set it away to cool. Beat four eggs very light; and when the milk is cold, stir them into it alternately with the meal, a little at a time of each. Add the salt. Beat the whole very hard after it is all mixed. Then butter some muffin-rings on the inside. Set them in a hot oven, or on a heated griddle; pour some of the batter into each; and bake the muffins well. Send them hot to table, continuing to bake while a fresh supply is wanted. Pull them open with your fingers, and eat them with butter, to which you may add molasses or honey.

How to Make No-Matters.—This is an article of food which has for many years been confined to the descendants of a single family. Its excellence will commend it to the attention of those housewives who wish to make a good display of culinary skill upon their tables, at the same time having a due regard to economy. The lady who furnishes the recipe has given frequent opportunities of tasting their delicious flavor; and if any are inquisitive, perhaps she might be induced to inform them how the cakes obtained their homely name.—"To three tea-cupfuls of buttermilk add three table-spoonfuls of rich cream, and a small quantity of sugar. Stir in flour until it is of the consistency of paste for doughnuts. Roll out size of a large breakfast plate, and fry in lard to a rich brown color. As each cake comes from the fire, cover with apple-sauce made from tart apples sweetened to taste, and spiced with nutmeg or cinnamon, and continue the process till the plate is well heaped."

Use of Salt in Cooking Vegetables.—Here is something everybody ought to have known long ago, and that everybody should now read and remember:—"If one portion of vegetables be boiled in pure distilled or rain water, and another in water to which a little salt has been added, a decided difference is perceptible in the tenderness of the two. Vegetables boiled in pure water are vastly inferior. This inferiority may go so far, in the case of onions, that they are almost entirely destitute of either taste or color, though when cooked in salted water, in addition to the pleasant salt taste, a peculiar sweetness and a strong aroma. They also contain more soluble matter than when cooked in pure water. Water which contains 1-420th of salt is far better for cooking vegetables than pure water, because the salt hinders the solution and evaporation of the soluble and flavoring principles of the vegetables.—*Scientific American.*

INDIAN CORN.—HINTS ON ITS CULTURE.

To the Editor of the Agriculturist.

Sir,—A few remarks, at this season, on this most important grain, may not be out of place. I find them in my note-book, where they were inserted from time to time, as the results of farm practice.

The yellow eight-rowed corn is preferable for this locality. It contains more oil and gluten than the white corn of the Southern States. The average yield of corn in this Province is about twenty-five bushels per acre; a good yield is forty to fifty bushels; while ninety to one hundred bushels have at times been raised.

The roots run very deep. A bushel of corn will shrink from the time of harvesting till thoroughly dry, about 22 per cent.

Two bushels of ears will generally make one bushel of grain.

For the proper cultivation of this cereal the soil should be dry. Standing water or moist soils do not produce good crops. The soil must be made rich and deep, as this plant feeds

strongly, and carries the root deep. Prepare your seed by selecting the most perfect grains, and previous to planting, soak them for a few hours to promote rapid vegetation, but do not allow them to swell and dry. It destroys vitality.

Spread broadcast on your fields a top-dressing of ashes, lime, and plaster; or add it to your hills or drills. Do not hill your corn. If planted in hills let them be at least three feet six inches apart; if in drills, let them be four feet apart, and each plant eight inches asunder. do not top your corn, but cut it at the butts and shock it. The corn ripens better, and keeps better; gives a greater weight of grain, and better fodder.

Plant not over one inch and a half deep. Plant from 1st to 15th May. Avoid frosts. Keep your crop free from grass and weeds; use the hoe and cultivator freely; do not wound the corn; and keep the soil loose. Do not cut off the suckers unless your corn stands too thick. Air and sunshine are necessary; but it is very doubtful whether the taking away the suckers produces any benefit.

As a steep for corn I would use soft water sufficient to cover the quantity to be used in a day, and add to it two ounces of sal ammoniac. Leave it in the steep till the corn begins to swell slightly. Nitre instead of sal ammoniac is excellent. Muriate of ammonia, one ounce for every quart is good.

As a compost for corn use the following :—gypsum 1 bushel, ashes unleached, 2 bushels, mixed; and add a gill to each hill when you plant, and before it is covered. When the corn is up, add another gill to a hill.

To estimate the quantity of shelled corn contained on the cobs in any given space, level the corn, and measure the length, breadth and depth; then multiply these dimensions together, and the product by four, cut off the last figure, and you will have the number of bushels of shelled corn, and the decimal of a bushel. If you desire to know the number of bushels of ears multiply by eight instead of four as above, and cut off one figure as before.

AGRICOLA.

Toronto, 21st Jan., 1856.

A CANADIAN IN EUROPE.

Sheriff Treadwell, Ex-president of the Provincial Association, having lately returned from a visit to Europe, gives us his impressions in a brief communication, part of which we take the liberty of laying before our readers. The zeal and patriotic efforts of the Sheriff in behalf of Canadian agriculture are well known, and require no eulogy from us. He says:—

"I returned home on the 17th inst., after an absence of nearly four months, during which time I visited Vermont, Maine, New Brunswick, and Nova Scotia, embarking on Board one of the Cunard steamers at Halifax; thus far I saw no agricultural improvements to surpass those of Upper Canada. Upon reaching England, I found the same remark not applicable. The value of land, the amount of capital which the farmer can command, the facility of obtaining labor, and the proximity to market, gives an advantage to the English farmer which leaves us far behind.

"The day I left Liverpool for London, being about the middle of August, was one of the finest days I ever saw. We crossed the Mersey to Birkenhead, thence to Chester, where we changed cars, thence by Birmingham and Oxford to London. The crops appeared beautiful, and the only thing to be regretted was, that a strong wind had passed over the country and a good deal of the wheat was lying. The view of the landscape, as we passed through the

country at railroad speed, was enchanting, and the impression made upon my mind, I think, will never be effaced. In reference to London it is not necessary that I should say anything; it is a great world of itself, and where the choice products of the earth centre. After spending a week in London, I proceeded to Paris, taking Southampton, Portsmouth, and the Isle of Wight in my route, and entering France at Havre. From Havre to Paris we had a most delightful day, and the country through which we passed had a fine appearance ; but I must say, I think our Canadian agriculture much before that of France in general. The splitting up of farms into narrow strips is an evil ; to get rid of which is a difficulty I see no remedy for ; nevertheless the Imperial school of Grignon, and several other schools of like nature, established in different Provinces in France, will, in twenty years, place her second to no agricultural country on the continent. I spent a considerable portion of eight days in the Universal Exhibition, and it is impossible for me to say anything which will add to the credit of Canada more than what has been said. In the Exhibition of 1851, we were much indebted to Mr. Logan, and we are again much indebted to him, and to Mr. Perry, of Montreal, for the arrangement of the products of Canada in Paris. The essays published must be of the highest possible advantage, and will make Canada known throughout the world. I scarcely know anything that could occur to place her in a higher position than that which she now holds before the French and British public.

"After spending between three and four weeks in France, I returned to London by Boulouge and the Thames, and this gave me a good view of the Thames from Gravesend to London. Among other things I saw the immense iron vessel of 20,000 tons, now building by Scott, Russell, & Co. After spending a few days more in London, I went to Edinburgh and called upon James Usher, Esq., and examined his steam plough, which I hope will yet prove a successful undertaking. I then went to the Lowlands to examine the high state to which farming had been carried in East Lothian. I was much pleased to find that their best agricultural implements were made after the same model as our own ; there were very few implements indeed that we have not as good in Canada. The steam-engine and high chimneys are nearly the only things in which we are deficient. On enquiry of a most intelligent Lowland Scotch farmer, he informed me that the secret of success in their farming consisted in three things—*underdraining*, the *rotation of crops*, in which the root crop bears a very prominent part, and the *application of Guano*.

If the Sheriff can find time to give us any facts of a practical nature, bearing on the subject of agricultural improvement, which he may have noted during his tour, we shall be glad to give them insertion in the *Agriculturist*.

Lord Redesdale.—Judging from Lord Redesdale's uncomplimentary allusion to the ladies who thronged the galleries of the House of Peers on a great debate night last session—that their presence made the House resemble a casino—one would be led to suppose that the aforesaid Lord Redesdale was a somewhat crusty, musty, &c., old bachelor. However, nothing of the kind. Instead of being cross-grained, yellow, shrivelled, bloodless, Lord Redesdale is plump and good-looking, with a fresh colour, not gained by sitting up o' nights, or by bachelor irregularities. If appearances are any guide in such matters, he is a man to whom few ladies would like to say No. But then, he is undeniably eccentric—wears no gloves, always affects a yellow nankeen waistcoat, a shabby hat, and a blue coat with brass buttons—and is altogher an odd person. An anecdote is told of him which shows at once what the outward man must be. His lordship called one morning at the house of a friend, a peer, and was set down without hesitation by the footman, who opened the door to him as a brother servant with a message for personal delivery to "my lord." Acting on this conclusion, Jeames, who happened to be thirsty, accosted the caller with a "I say, there's nobody in just now to send ; I wish you'd go to the corner, and bring up a pint of half-and-half —there's a good feller." The supposed footman entered into the joke, not only ordered, but brought the mixture of Barclay and Perkins, in its native pewter, with his own (ungloved) hands, and entered into friendly converse with the "precious dry" hall Cerberus. Presently "my lord" came in, and shook the shabby person by both hands. "Halloa, Redesdale ! In the hall? How's this ? Hope you havn't been waiting long." What Jeames's feelings were on the occasion the story does not pretend to relate ; they may be left to the imagination.

EDITORIAL MISCELLANY.

The Farmer's Guide to Scientific and Practical Agriculture, by Henry Stephens, F. R. S., E. assisted by J. P. Norton, Professor of Scientific Agriculture, Yale College, U. S., new edition, 1855, 2 *vols.*

This admirable work is now placed within the reach of the farmer's of Canada, at the low price of $6. We have made arrangements with the New York Publishers by which we are able to supply our friends in Canada with a work which is a library in itself, at about *one third* of the price at which it was published in Scotland and England. This edition moreover, has the advantage of Professor Norton's Notes, which adapt the work to this continent. It is the most complete treatise on Scientific and Practical Agriculture extant, illustrated with some twenty engravings on steel, and about *six hundred* on wood. It is arranged under four distinct heads representing the seasons, and every branch of Agricultural practice as now followed on the best Farms in the best districts of England and Scotland, especially the latter are minutely explained.

It is an admirable prize to be awarded at agricultural shows instead of money which is soon spent—perhaps wasted—and carries no *improving* influence with it. We shall be happy to supply Agricultural Societies and Clubs with copies even at a small reduction from the price stated. Canvassing Agents for this paper will be supplied with copies on terms that will leave them a good profit. Our object is to introduce the work as extensively as possible, and on the lowest terms at which it can be afforded.

Our Terms.—There appears to be some misunderstanding as to the commission we pay to Agents. We allow the 33⅓ per cent out of 3s. 9d. the subscription price of single subscribers to Agents or otherwise. We can throw off no commission from 2s. 6d. the club price.

Agents.—Agents have been appointed in a good number of townships, but we require one in each. Young men with a few weeks to spare can do a good work, and make pocket money enough for the next year. We require good references.

Thanks.—We must express our grateful thanks to many kind friends who have aided in extending the circulation of our paper during the last month. We require yet however, a large number of subscribers, to enable us to publish a first-class paper, and we trust none of our well-wishers will grow weary in well-doing.

Hay Caps.—The communication from G. W. Baker, Esq., of Ottawa, is again unavoidably crowded out. It shall appear in our next number.

TORONTO MARKETS.

January 28.

The supply on the produce market during the month has been unusually small, and previous quotations for the majority of articles are more than sustained. Farmers hold their products very firmly, and little or no speculation has been going on.

Wheat.—The supply of wheat has hardly been sufficient for city milling, and with the exception of a prime load now and then, none has been brought for export. The price has ranged from 7s. 6d. to 8s. 6d. per bushel. Inferior samples have been purchased at 7s.

Flour.—Little or nothing doing among wholesale dealers. Prices for superfine have ranged from $6¾ to $7½. Farmers' flour has been in moderate supply at $7¼ a $8½ per bl. in bags.

Potatoes have been very scarce, and the demand is very active. Sales are made at 4s a 4s 6d and for some prime lots 5s have been realized.

Oats.—In good supply throughout the month. The usual price paid has been from 2s 6d to 2s 10d per bushel.

THE

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AGRICULTURE—PAST AND PRESENT.

A LECTURE DELIVERED BY PROF. BUCKLAND BEFORE THE TORONTO MECHANICS INSTITUTE, DEC. 21ST, 1855.—CONCLUDED FROM OUR LAST.

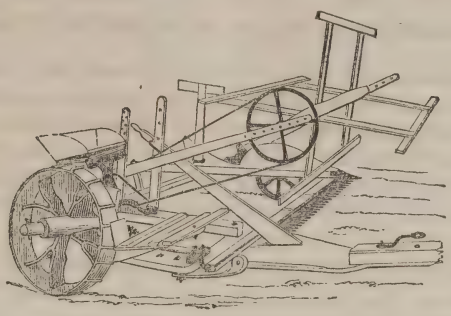
A new feature among Agriculturists of modern times which has already been so fruitful in good results, and which holds out such high hopes for the future, consists not merely in invoking physical science in order to explain the why and the wherefore of agricultural phenomena, but also in *the habit of association*, for the diffusion of sound knowledge, affecting both theory and practice. In the commencement of the last century a small body of Scotch land-owners formed themselves into a "*Society of Improvers in the Knowledge of Agriculture*," which eventually led to the establishment of the present Highland and Agricultural Society of Scotland—the parent of all similar institutions, not only in the British Empire but throughout the world. I need not dwell on the many and great advantages which have flowed from this and its sister institutions, both in England and Ireland and several of the colonies, as well as in many countries of Europe, and among our neighbours of the United States. Our own Provincial Associations of Upper and Lower Canada; our Bureau and Boards of Agriculture; the provisions which are made for imparting a knowledge of the science and principles of this noble art in our Normal and Common Schools, as well as in our Colleges and Universities; and last, but by no means least, the county and township Agricultural Societies, which cover the settled portions of the Province like a network; these various instrumentalities, under the fostering care of the Government, are, in connection with the intelligence and industry of our people, fast placing Canada among the foremost ranks of agricultural countries. The rising generation of our farmers inherit great advantages. Let us hope that while they emulate the persevering and industrious habits of their fathers—the brave pioneers of the wilderness—that they will not lag behind the intellectual progress of the age, but qualify themselves by character and talent, like those we hear spoken of in ancient Rome, for the highest and most honourable offices in the State.

In conclusion, let none of us overlook the moral as well as physical force which is contained in the subject which I have so imperfectly brought before you. The vocation of the farmer, when intelligently pursued, is of all employments, perhaps, the most favourable to health of body and purity of mind. Surrounded by the beauties and wonders of nature, he becomes, in the performance of his daily duties, a co-operator with God. For if the physical sciences, as we call them, if these familiar names of Geology, Chemistry, Botany, Physiology, and the whole string of kindred studies, each in a greater or less degree, connected with the labours and research of the Agriculturist, be indeed but the multiplied title which we have given to the various but correlative parts of one great machine—if their separate investigation be after all found concentric to the same end and object—the knowledge of *His* works and mode of action, who has made nothing in vain, nothing deficient, nothing superfluous, may they not begin to assume to our understanding something beyond what we are accustomed by habit to associate with the name of 'physical?' Have they no ultimate purpose or leaving; no mission to mankind beyond the analysis of a soil, the cultivation of a plant, or the filling of a granary or a museum, as 'be-all and the end-all' of human knowledge? Then were the creation that surrounds us but a mockery to the self-conscious mind, that recognizing in these objects the mere pabulum of a material and intellectual lip, is sensible of an existence and an aim, to which these are still the subsidiary faculties.

"We look around and find ourselves amidst a great and harmonious system, whose laws are ever pressing around us; more and more clearly the knowledge breaks upon us, that we are a constituted and essential part of that system, in which, under the guidance of unerring wisdom, the humblest even of the material parts have each their appointed purpose and connection with the rest, and as the subjects of human labour and intelligence become pregnant with results which carry on, far beyond our own ephemeral plans and purposes. It is at this point of view that the material and moral world begin to blend together in one mind and reasoning. Causes and effects which we once regarded as purely physical and temporary, begin to assume a wider aspect, a permanence and moral fixity of purpose, which, when regarded by themselves, we had never attached to them. The sustenance, the comforts, the conveniencies of life, achieved by art and science, are no longer the mere utilitarian objects of human ingenuity, nor the matter from which they are struck out, nor the minds that struck them out, things to contemplate independently, or for their own sake alone. Physical things, and the sciences which relate to them, begin to be invested with a garment of meaning and of purpose altogether new. The drained morass, the fresh-turned fallow, the waving cornfield, the meadow, with its herbage interspersed with flowers, no longer stand separately before us as things of mere labour, utility, or beauty, our relation to them the accident of a day. 'Day unto day uttereth speech, and night unto night giveth knowledge,'—but that speech and knowledge are not the mere 'profane history' of nature. A higher ordinance and appointment, enveloped within their teaching, becomes gradually but irresistibly revealed, binding and disposing all to work together to the greatest ends, not of the undivided only, but of the whole family of man; not of his phisical necessities or intellectual pursuits alone, but of his whole relation to that highest wisdom, whose evidences and attributes are engraven upon the fabric of nature, in characters not of power or knowledge only, but of universal and inexhaustible beneficence."

The Alphabet.—Which are the most industrious letters?—The Bees. What are the most extensive letters?—The Seas. Which are the most fond of comfort?—The Ease. Which are the most egotistical letters?—The I's. Which are the noisiest letters?—The J's. Which are the longest letters?—The Ells. Which are the poorest letters?—The O's. Which are the leguminous letters?—The Peas. Which are the greatest bores?—The Teas. Which are the sensible letters?—The Wise.

Relieve misfortune quickly. A man is like an egg, the longer he is kept in hot water, the harder he is when he is taken out.



MANNY'S REAPER AND MOWER.

The cut represents this celebrated machine as lately improved by Messrs. Walton & Co., manufactures, at Holland Landing. Manny's machine proved itself in the trials at Paris, superior to *all* others in some points, and to *most* of its competitors, in all points. It can be changed from a Reaper to a Mower in a moment, and having used one last season, we do not hesitate to say, that as a mower it is quite equal to Ketchum's. Messrs. Massey & Co., of Newcastle, manufactured several of these machines last year, and though defective in some points,—which no doubt will be remedied hereafter they proved themselves well adapted to the wants of the Canadian farmer.

We refer the reader to the advertisement of Messrs. Walton & Co. for particulars, but we understand that one of the improvements – and if real, it is an important one—renders more easy the discharge of the grain at the side of the platform. The gearing is shortened and rendered more compact, and the small platform wheel is attached in a more substantial manner. If made of good materials, and by experienced workmen, we believe this machine will become a general favourite.

A Stratum of Salt under Niagara Falls.—E. Merriam, of Brooklyn, who has examined the rocks underlying the limestone bed of the Niagara River, states that he found a saline stratum under them. This stratum is the foundation of the great limestone walls which form the great cataract of Niagara, a frail structure it is, and it is in this stratum that the Niagara has the whole of its bed below the Falls, and being soft, the water which falls over the Horse Shoe and over the American, north of Goat Island, has had no difficulty in sinking chasms of vast depth, into which the broken rock of the limestone walls, which compose the cataract, falls. This stratum extends over a large tract of country, watered by the great lakes, which seem to have a subterranean communication with the volcanoes of Hecla, in Iceland, and those of the southern part of the European continent, as the disturbance caused by the earthquake at Lisbon, in 1775, caused the agitation of the waters of Lake Ontario. He says that an immense volume of gas arises from the chasm into which Niagara plunges from the lofty precipices which form the Horse Shoe on the American fall, and might with proper apparatus be ignited—and when on fire would exceed in beauty the flames of the gas ascending from the deep ravines of the salines of Kanhawha, which give a column of flame of seventy feet in height. His conclusion, from all his observation, is, that the great falls do not date beyond the universal deluge.

Nobility and gentleness go hand in hand, and when I see a young man kind to his mother, and gentle and forbearing to his mother and sisters, I think he has a noble heart.—*Selected.*

AGRICULTURE IN NEW BRUNSWICK.

Restigouche Ag. Society.—We have to thank D. Stewart, Esq., Secretary, for a copy of the 18th Annual Report of the above Society. We are always willing to note improvements among our fellow-colonists in the Lower Provinces, and should be glad to publish an occasional communication from some of our subscribers in New Brunswick, Nova Scotia, &c.

From the Report before us we learn that agriculture in New Brunswick is advancing. The crop of last season was an average one, but from the absence of snow for a long period during the present winter, fears are expressed for the next crop. The Society has imported seeds, &c., and cattle, from the Old Country, to a considerable extent, and the Report speaks favourably of the result. The Ayrshires are highly prized, and the West Highland cattle, though disliked by the farmers at first, are now in much favour. "Our farmers," says the Report, "are now convinced by experience, that they are the best adapted to our climate and pasture, crossing advantageously with our best milchers, producing profitable dairy cows and superior working oxen, that are unequalled for *wading through deep snow.*" Such oxen would have been prized in Canada this winter, for we have had *deeper* snow, and for a *longer* period than we can recollect in many years. The "Normandy Horse" is a favourite in New Brunswick, and another importation is to be made by the Society. There is one feature of the Prize List of this Society that we admire : a volume of the *Agriculturist* is given as a third, or fourth prize, as the case may be. It is not because our journal is chosen that we admire the plan, but that other objects beside *money* are recognized as capable of exciting emulation among competitors. The Report contains the following notice of the *Agriculturist*, and we assure the Society that we appreciate their good opinion :—"Forty copies of the *Canadian Agriculturist* are again ordered for distribution. This publication is becoming more and more interesting and useful, &c."

VEGETABLE CUTTER.

To the Editor of the Agriculturist.

Dear Sir,—I notice in your February number a cut of a Vegetable Cutter. I bought one last year with which I am quite disgusted, and people say there are no good ones made in the country. Now could you recommend the one of which you give a cut? If so I should be very thankful by your informing me in your next number where they are manufactured.

Your obedient Servant,

Beachville, C. W., Feb. 1856. C. Place.

Remarks.—The Vegetable Cutter, of which we gave a description in the last number, is made in this City, and also at Albany, Rochester, and no doubt other large towns on the other side of the line. Messrs. McIntosh & Walton, of this City, can, we believe, supply one at any time. As to recommending it, we can only say, that it is made on a *good principle*, and those who have used them hereabouts, speak well of them. We have not, personally, used it, but if we were about to purchase, we should choose it in preference to any with which we are acquainted, and this is all we can say on the subject.

NOTES ON CLOVER.

Editor of the Agriculturist.

SIR:—

Of this valuable plant there are several varieties, generally distinguished as medium, large, and tall clover. There is another variety called green clover, though it may be the same as the tall clover, being slower in vegetation, of greater strength, and bearing more and larger green leaves than the medium. It flowers later but it produces much woody fibre useless to stock.

The best soil for clover is clay loam, though by careful cultivation and moist summers it succeeds well on sandy soils. As it sends its roots deep into the earth, it does not readily suffer from dry weather.

To cultivate clover we find it judicious to protect the young plant by sowing the seed with some other plant which is soon to come off the ground. Thus we sow it with advantage as early as possible in the spring on our wheat fields, and it gains strength and vigor by the time of harvest; it is equally successful when sown with flax or buckwheat.

It should always be sown early so as to establish a good plant and root before winter, as frost and ice often destroy the young plants. Early sowing insures early vegetation, and thus the young plant escapes the injury of dry summers, and the oft unheeded attacks of the aphides, a pest but little suspected by our farmers, and yet one of their worst enemies. The seed must never be buried under a layer of earth, but it is sufficient to roll it, the pressure giving it abundant contact with the earth without injuring the wheat. It is important that the seed be evenly sown, to effect which we may first sow one half length-wise of the field, and the other half across it.

Not less than eight pounds of seed should be sown per acre. Even with this quantity a field may appear thin at first, but will soon cover. I think ten pounds per acre is the least quantity proper.

Clover is often destroyed by winter, especially on wet soils; it is raised by the frost and the roots broken. Drainage will correct this evil, and so will deep cultivation or sub-soiling. We must not always despair of our clover when it does not readily show itself after frost, for the root sometimes retains a hold of the earth, and will shoot vigorously; if however the root draws easily from the ground, there is but little chance of recovery

The analysis of clover shows a large amount of sulphuric acid and lime, and this accounts for the very striking benefit derived from Plaster of Paris. Never fail therefore to dress your clover with one bushel of plaster per acre in the spring, when it has put forth its first leaves. I would harrow the field before sowing the plaster, and before the clover shoots forth; a practice which will abundantly repay the labor.

The proper time for cutting clover for hay is when the field is purple with the blossom or flower. If we let it stand longer, the stems become woody, and do not furnish nutritive matter to cattle, and the next crop is enfeebled.

As clover is a *perennial plant, it dies in the third or fourth year. Its greatest yield is generally the next season after sowing, the next crop is less plentiful, and the third is small. The third crop makes valuable manure for the field if ploughed in as preparatory to wheat.

From the first or second crop we obtain a supply of seed, in which case we cut early for hay; the clover then blooms strongly in time to cut and house it before autumn, and yields a full supply of seed. A bushel of seed weighs from sixty to sixty four pounds. It is wrong to feed off a clover lot by cattle either the first or second year. As a general rule it is advisable to sow timothy seed with clover when we intend to continue a field in grass, for when the clover ceases the timothy will be in full vigor, and together, they make most excellent hay.

Toronto, 11th Feb. 1856. AGRICOLA.

* The common red clover is a biennial. It comes into use in the *second* year of its existence. It then dies. There is a variety known as *Trifolium pratense perenne*, perennial red, but the seed is costly, and Stephens says,—"It is questionable that its permanency should counterbalance the greater cost of seed."—[Ed.

SHARPENING EDGE TOOLS.

Messrs. Editors :—A German scientific journal has the following, which has been translated for the benefit of those whom it concerns.

"It has long been known, that the simplest method of sharpening a razor is to put it for half an hour in water to which has been added one-twentieth of its weight of muriatic or sulphuric acid, then lightly wipe it off, and after a few hours set it on a hone. The acid here supplies the place of a whetstone by corroding the whole surface uniformly, so that nothing further but a smooth polish is necessary. The process never injures good blades, while badly hardened ones are improved by it, although the cause of such an improvement remains unexplained. Of late, this process has been applied to many other cutting implements. The workman, at the beginning of his noon spell, or when he leaves off in the evening, moistens the blades of his tools with water acidified as above, the cost of which is almost nothing. This saves the consumption of time and labour in whetting, which moreover speedily wears out the blades."

In reply to the suggestion contained in the last paragraph, I would say, it has been the practice from time immemorial, perhaps, for mowers in France, to keep their whetstones—the blue, or rag-stones—steeped in vinegar and water contained in a bullock's horn strapped at the back around the loins, fastened with a buckle in front; the acetous, answering, no doubt, the same purpose as the muriatic or sulphuric acid. The scythes used in France are the German, with long, straight handles, and blades that are sharpened by *hammering* instead of *grinding* the edge; so that, in all probability, when the German scythe came into use the mode of keeping the whetstone in acidulated water accompanied it. The German scythe is a most formidable weapon; I have seen a French mower carry a swathe in a heavy crop of grass full ten feet wide, and make the most perfect work, but it is herculean labor, and could not, one would suppose, be continued for any great length of time; and if used in competition with the American scythe, with its peculiarly-curved short snaith and fixings, would, I guess, be found wanting in every thing but length. L. N.

A PHRENOLOGIST POSED.—A travelling phrenologist stopped at a farm-house, the proprietor of which was busily engaged in threshing. "Sir," said the traveller, "I am a phrenologist. Would you like me to examine the heads of your children? I will do it cheap." "Well," said the farmer, pausing between two strokes, "I rather guess they don't need it. The old woman *combs 'em with a fine-tooth comb once a week!*"

HAY CAPS.

We are indebted to G. W. Baker, Esq., of Ottawa, for the following letter on Hay Caps:—

ROUND HILL, NORTHAMPTON, MASS.
June 25th, 1855.

To the Editor of the Hampshire Gazette.

SIR,—

Permit me through your respectable journal, to advise my brother farmers to supply themselves with a most useful and economical article of covers to protect their hay against rain, which I have fully tested for the last five years to my entire satisfaction. They are made in the following manner,—viz: stout unbleached cotton sheeting should be purchased—(such as is made by the Lyman Mills Co. at Holyoke) from 36 to 40 inches wide—the latter is best—which should be cut in lengths of 40 to 45 inch. the latter is more useful. To make 50 of them, (and no extensive farmer should have less than 100,) would require about a gallon of linseed oil, which should be simmered with 4 pounds of beeswax and a quart of japan added after it is taken from the fire;—when cold the mixture should be about the thickness of lard in summer, if not more oil or wax should be added. The cloth should then be passed over, (to use a sea expression,) with the hand on one side only, and then dried in the sun.

When dry the females of the family will in a very short time sew into each corner a stone of the weight of about 5 to 6 ounces which completes the affair. I do not think I am extravagant in saying they will pay their cost in one season, and will last ten years if taken good care of. Large covers made in the same manner, to cover the whole of a load of hay, with heavier weights of course would be an admirable protection against sudden showers, but as I have not often made hay at a distance from home I have never required them. I keep three horses one is about thirty, one about eighteen, and one about fourteen years old. I have never known either of them to be sick for one hour. The heaves are unknown in my stable, which may fairly be attributed to the fact, that no musty hay ever enters my barn; and it is possible that the milk of cows may be as unwholesome if they are fed on badly cured hay, as if they were fed on what is called swill in the cities.

Since I wrote the above (now 2d July,) we have had one entire rainy day, when my neighbors hay was thoroughly soaked, while mine was as safely covered as if it had been packed away in the barn. My manager thinks that one third of the cost of some new covers just made, was paid for on that day. One word more on the subject of hay making, and I have done. It is always my practice to commence mowing when my grass is ready, without stopping "to count the clouds," and even if it sprinkled, if my men choose to take their scythes into the field I make no objection. The result has been after long experience, that I have had more than my share of good luck in this critical branch of business. It is said that our ancestors considered it a good rule to take an umbrella or great coat on their horseback journeys if the weather was fair, but if it was cloudy or rainy, they might do as the pleased.

Respectfully yours,
EDWARD CLARKE.

The Hon'ble Amasa Walker of the county of Worcester in this State thinks that twenty thousand dollars would have been saved during the late wet weather, to the farmers in that county alone, had they have been supplied with the hay caps referred to; Mr. Clarke is also of opinion, that the saving to the farmers in the west during the wet weather would have been incalculable, had they have had them to cover their wheat stacks.

A NEW FOOD.

SUBSTITUTE FOR THE POTATOE.

Two correspondents have sent us accounts of the Chinese Yam or Japan potatoe, an esculent lately introduced into France, and also within the last year or two, into the United States. We believe a gentleman of this city imported a few roots last season, but whether he received them in time, or succeeded in reproducing them here, we have not learned. The following is furnished by a city subscriber, extracted we believe, from the *Anglo-Saxon*.

THE CHINESE YAM.

Attention, as all men know, has of late years been anxiously turned towards the discovery of a plant capable, in whole or in part, of forming a substitute for the precarious potatoe crop. Many have been suggested. The tuberous oxalis, the arracacha, the lesser calendnie, and many more, have from time to time been brought into notice; but each in turn, when weighed in the balance of practical agriculture, has been found wanting.

The star of hope to which the eye of hungry Europe is now directed is an oriental yam, which the combined labors of the "allies" have suddenly brought forth from an inglorious obscurity of 6,000 years. Like the East and West Indian yams already known, it belongs to the genius DIOSCOREA—but is very different from these in its specific character. Mr. Decaisne's experiments lead to the conclusion that it would speedily become a plant of real agricultural importance in France; and professor Lindley sees no reason, judging from its geographical distribution, and its affinity to our hedge bryony, which it much resembles—why it should not suit our climate.

The plant has large perennial rhizomes or roots, the top end of which are as thick as the fist, and which taper downwards to the thickness of the finger, descending perpendicularly to the depth of a yard, if the soil is loose enough to allow them. The haulm is annual, as thick as a goose quill, cylindrical, entwining from right to left, two yards in height, of a violet color, with small whitish specks; and when not artificially supported it trails on the ground, rooting freely at the joints. In China, this plant has long been in extensive cultivation under the name of SAIN-IN; and Mr. Montigny through whom it was introduced from Shanghae to Paris, reports it to be highly productive, and consumed as largely by Chinese as the potatoe is by Europeans.

As yet the applicability of the plant to Britain has not been practically demonstrated, but the French horticulturists, who have been at much pains to inquire into its merits, have arrived at the following conclusions:—1. That in the point of flavor and nutritive properties, it is equal to the potatoe, and in the opinion of Professor Ducaisne superior. 2. That the yield is greater, whilst its freedom from disease renders the crop more certain.—3. That it will grow upon sandy, and what are usually considered barren soils; and this affords an excellent means of turning waste land to profit.—4. That it can be propagated with facility.—5. That it may remain in the ground several years without degenerating, but on the contrary, it increases in size, weight, and nutriment, "furnishing at all seasons of the year an aliment within the reach of every one."—6. That when harvested it may be preserved in cellars or sheds, without vegetating, for many months after the potatoe has become useless for food.—7. It requires a shorter time for cooking than the potatoe, ten minutes boiling being sufficient.

Mr. Decaisne, in detailing his experiments, observes: "If a new plant is to have a chance of becoming useful in rural economy, it must fulfil certain conditions, in the

absence of which its cultivation cannot be profitable. . . . Now, the Chinese yam satisfies every one of these conditions. It has been domesticated from time immemorial; it is perfectly hardy in the climate of France; its root is bulky, rich in nutritive matter, eatable when raw, easily cooked either by boiling or roasting, and then having no other taste than that of flour (fecule). It is as much a ready-made bread as the potatoe, and is better than the batatas or sweet potatoe."

The system of cultivation recommended by Professor Lindley for Britain is the following, viz:—For propagation, the smallest roots are set apart, and pitted to keep them from frost. In the spring, they are taken out and planted in furrows, pretty near each other, in well prepared ground. They soon sprout and form prostrate stems, which are made into cuttings as soon as they are six feet long. As soon as the cuttings are ready, a field is worked into ridges, along each of which is formed a small furrow in which the pieces of the stem are laid down and covered with a little earth, the leaves being left bare. If rainy weather follows, the cuttings strike immediately; if dry, they must be watered until they do strike. In fifteen or twenty days, the roots begin to form, and at the same time lateral branches appear, which are carefully removed from time to time, to facilitate the swelling of the roots. In general one plant produces two or three tubers (rhizomes) which are of a coffee color externally, but consist internally of a white, apaline, very friable, slightly milky, cellular mass, filled with flour, which softens and dries in cooking till it acquires the taste and quality of a potatoe, "for which it might be mistaken"—possibly in taste, certainly not in appearance."

The account given below is from D. A. Ross, Esq., of Quebec, who condensed it from an American Journal. We should be glad to hear from any of our readers who have attempted to cultivate this plant. The continued liability of the potatoe to disease, makes the question of a substitute interesting to all:—

THE CHINESE OR JAPAN POTATOE.

This most important esculent (Dioscorea Batatas, Dioscorea Japanica or Ignam de la Chine) was first introduced into Europe in 1850, it having been sent to France by Monsieur de Montigny, French Consul at Shanghae, in northern China. It is in no case subject to decay, whether in the ground or out of it, and is of so hardy a character as to withstand the severest winter uninjured. It is superior in farinaceous properties to both the known species of potatoe. The "Mark Lane Express" acknowledges that it is a substitute more valuable than the ordinary potatoe.

Roots of this plant have been produced in middle and northern France, weighing from two to two and a half pounds, from tubers planted in April and dug in October. One great point of superiority possessed by it is that it may remain in the ground two or three years, always enlarging in size and equally nutritious and excellent in flavor. Experiments have proved that when the roots are left for eighteen months in the ground, the yield is more than treble that of roots left but for one summer, and it is also considered that the roots are improved in quality.

In the spring of 1853 the largest plantation in France contained but 700 roots.—Yet such is the ease and rapidity of its propagation, and increase that it is already becoming most remarkably disseminated. Its growth is very rapid and it seems suited to any climate and to any soil although a sandy loam or sandy soil has been deemed preferable in Europe where the sun heat is so much less powerful than with us. It has been tested in America, in sandy and in stiff loam and grew vigorously in both, and from analogy it is more than probable that it will do well in humid soils.

Its roots run perpendicularly into the earth, thereby greatly enlarging its capacity to produce the greatest possible crops from a given space of ground. It has been calculated in the French Publications, from the experiments there made, that an acre will in six months produce 36,000 pounds, and in eighteen months, 120,000 lbs.

The roots, when placed in a cellar, remain firm and perfect, as well as free from sprouts, and they can be kept out of the ground a year without injury or deterioration of their alimentary qualities. This property renders them invaluable for use in long sea voyages and as preventatives of scurvy. This plant is better adapted to cold than to hot climates. The root is from 15 to 25 inches long and two inches in diameter, tapering from the head, the outward appearance similar to the white variety of the sweet potatoe—skin thin, readily peeling off when cooked; flesh snow white, delicately farinaceous, with a slight almond flavor, exceedingly grateful when used in the same manner as the ordinary potatoe and deemed both richer in nutrition and superior in quality. It can be cooked by water or steam, or roasted, and in appearance and taste is like the finest mealy varieties of the common potatoe. It requires but ten minutes boiling—the ordinary potatoe requires twenty. It produces a fine, pure, white flour which will compare advantageously with any wheat flour.

This plant combines the advantages of immense product, diminished comparative labor, and adaptation to the soil where scarcely any other root will grow, and will remain in the ground during winter and for a period of three or more years furnishing throughout all seasons a fresh, wholesome and nutritious aliment for all classes at the cheapest rate. The acquisition of this esculent constitutes an era in Agriculture.—Small sections or eyes of the root (the same as potatoe sets) may be planted at the first opening of spring at a depth of about three inches.

Information may be obtained on the subject of this valuable esculent from "The United States Patent Office Report" just issued "La Revue Horticole" and "Boa Jardinier" of France, and "The Mark Lane Express," and from William R. Prince, Esq., of Flushing, Long Island, N. Y. the author of an interesting letter on the subject which appeared in the columns of "The New York Tribune," on the 29th December, 1853, under the caption of "The new Esculent Root," "The Chinese or Japan Potatoe" and from which the foregoing particulars have been abridged.

Mulching Fruit Trees.—A correspondent of the Horticulturist planted 150 trees in very good but rather dry soil. All were planted with equal care, but a third of them were *mulched*, or the surface of the ground when planted, covered with six inches of litter. Those thus treated all lived; but fifteen of those not mulched died in the hot, dry weather of midsummer. It is not stated that the soil was kept clean and mellow around them; which will often save the life of trees, when they would die of neglect.

Great Thoughts.—No productiveneness of the highest kind, no remarkable discovery, no great thought which bears fruit and has results, is in the power of any one; such things are elevated above all earthly control. Man must consider them as an unexpected gift from above, as pure children of God, which he must receive and venerate with joyful thanks. . . . In such cases, man may often be considered as an instrument in a higher government of the world, as a vessel found worthy for the reception of a Divine influence. I say this whilst I consider how often a single thought has given a different form to whole centuries, and how individual men have, by their expressions, imprinted a stamp upon the age.—*Goethe.*

GENERAL DIRECTIONS FOR FEEDING AND FATTENING OF PIGS.

Regular hours of feeding rank among the first of the rules which ought to be observed; the pigs will soon learn to expect their meals at certain times, and the stomach will be ready for it; irregularity will, therefore, irritate the digestive powers, and prevent so much benefit being derived from the meal when it does come.

Small meals, and many of them, are preferable to few and large ones, for swine are very apt to gorge and over-eat themselves, or if any be left in the trough, to return to it by fits and starts until it is all gone; in both cases the digestive functions are impaired, and the process is not fully and beneficially performed. The best remedy for indigestion is to let the animal fast for four-and-twenty hours, and then to give them a small quantity of dry food, as barley or peas, whole and salted, and let them fast four or five hours more before resuming their usual food.

Pigs always eat more when first put up to fatten than they do afterwards; therefore the most nutritious food should be reserved until they are getting pretty fat. And at that period the food must be varied, for the appetite being diminished, it becomes necessary to excite it by variety; and, besides, the same aliment constantly given palls upon the stomach, and is incapable of supplying in itself all the various kinds of nutriment required by the increased and altered state of the body.

It will be found advantageous occasionally to mingle a little sulphur or powdered antimony with the food of swine put up to fatten; about half an ounce once in ten days will usually be sufficient. These medicines tend to purify the blood, facilitate digestion, and maintain the appetite.

An American writer states that he has found gall-nuts, bruised and mingled with charcoal, to act most beneficially on the health of swine while being fattened; and also recommends that they should always be allowed to root in the earth of a small yard attached to the sty each day, and, if they will, eat some of the earth, which will be good for them. An intelligent writer in the *Quarterly Journal of Agriculture* states, that on the Duke of Montrose's estate, the pigs have ashes and cinders given them occasionally to correct the acidity of the stomach; and that they are frequently turned out to a piece of ground sprinkled with lime, which they root in and eat; or else, if this is not possible on account of the weather, a little magnesia is now and then mingled in the milk. These simple precautions are always more or less necessary to animals that are highly fed and have little or no exercise, and we should recommend them to the attention of all owners of pigs.

Cleanliness is another *sine qua non*. There is no idea so utterly without foundation as the common one "that pigs love dirt," and that these animals thrive best in the midst of filth. We will quote one anecdote out of the many which have come to our knowledge, in refutation to this absurd opinion:—"A gentleman in Norfolk put up six pigs of almost exactly equal weight, and all in equal health to fatten; treated them, with one exception, all exactly the same, and fed them on similar food, given in equal quantities to each, for seven weeks. Three of these pigs were left to shift for themselves so far as cleanliness went, and the other three were carefully curried, brushed and washed. These latter consumed in the seven weeks less food by five bushels than the other three, and yet, when killed, weighed more by 2 stones 4 lbs. on the average."

It should be the duty of some one person to keep the skins of the pigs put up to fatten —indeed, we would rather say, of all the pigs kept—perfectly free from mud, dust, or filth of any kind; and this will best be done by taking care that they always have clear water to bathe in within their reach, clean litter to lie upon, are occasionally combed and brushed, and that the sty is always kept free from filth. Nothing is so likely to engender lice and disease of the skin as for it to be suffered to remain in a dirty state. It is true that the maintenance of cleanliness will cost some trouble and expense, but every owner of pigs will best consult his own interests by attention to this point.

The best period for fattening pigs is autumn; then almost every kind of food is to be had in plenty, as well as in perfection; the weather is neither too hot nor too cold; and the humidity generally prevalent at this season acts beneficially upon the skin and tissues, and as it were lubricates the whole animal economy. Besides, they are ready to be slaughtered at the period when this can be done with most advantage; when the lowness of the temperature allows more time, and consequently enables the owner to turn the flesh to the greatest advantage; whereas in hot weather the meat must be salted or pickled, eaten or disposed of immediately, or it turns off and is spoiled. In the immediate neighbourhood of large towns alone will it be found advantageous to to fatten pigs so as to have them ready to kill in the summer; there the prices which can often be obtained may compensate the dealer for the difficulty and risk he undergoes; but even the facilities afforded by railways will hardly do this to those who reside in remote localities, as here the expense of the transit has to be added to the other items, and the risk is increased by close packing.

The best kinds of food for fattening pigs are:—

Milk or whey mixed with barley, oat, corn, or pea-meal, or with boiled and mashed potatoes.

Potatoes and rice; potatoes and meal of any of the above kinds, or mashed potatoes and whole grain.

Peas given whole, or crushed, or in the form of soup, and either alone or mixed with barley meal or potatoes.

Carrots and parsnips; and especially boiled carrots, which some persons consider to be the most nutritious and fattening food that can be given to swine.

Pasturage or clover, lucerne, or sainfoin, or a run in the stubble of corn-fields immediately after the crop has been cut and got in.

Beet-root and ruta-baga are good; but should only be given when other roots cannot be easily obtained.

And lastly, grain itself, as corn, barley, and oats, but not rye.

An American correspondent gives the following recipe for "an exceedingly nutritious food for hogs;" but it is one which circumstances will not often permit us to make use of:—"Boil Irish potatoes, pumpkins, and apples until they are soft; mash them all together, taking care thoroughly to mix and incorporate them, and add a little salt to the compound; swine will be found to relish this food highly, and thrive uncommonly well upon it."

A small portion of salt should always be mingled in whatever food is given, as it tends to stimulate the appetite as well as the digestive functions; and an ample supply of good water for drinking be kept within the reach of every animal.

Indian corn, buckwheat, rice, and maize, may doubtless be given with advantage, and are in themselves highly nutritious; but they cannot be reckoned as among the kinds of food generally in use, as, unless under peculiar circumstances, they are too expensive, and not always to be obtained at all.

Turnips, cabbage, lettuce, and beans, are not so much adapted for fattening as the kinds of food above enumerated, although these matters often form valuable additions to the keep of store pigs.—YOUATT, *on the Pig*.

THOUGHTS AND WORKS.—It is much easier to think right without doing right, than to do right without thinking right. Just thoughts may, and wofully often do fail of producing just deeds; but just deeds are sure to beget just thoughts. For when the heart is pure and straight, there is hardly anything which can mislead the understanding in matters of immediate personal concernment. But the clearest understanding can do little in purifying an impure heart, the strongest little in straightening a crooked one. You cannot reason or talk an Augean stable into cleanliness. A single day's work would make more progress in such a task than a century's words.—*Hare*.

POTATOES AS BIG AS A BARREL.

Not that they have been produced yet, but are going to be. The following is the process, and as it is not patented, every body can try the same experiment.

To the Editor of the N. Y. Tribune.

Sir: About a year ago I conceived the idea of producing the mammoth size of the petrified remains of plants, which we meet with in the study of geology, by means of an excess in supply of carbonic acid. I constructed an iron vessel, in which I generated carbonic acid gas by means of drenching limestone with vinegar. This I infused into the soil in a flower-pot in which I had planted a potatoe. I did this daily; also I put the flower-pot into an iron vessel filled with the carbonic acid and covered to prevent diffusion. At the end of about six months the plant reached the hight of four feet, and bore a pale blossom. In a week more the pot was split. I took out the plant, and a single potato (beside the remains of that I planted) of about eight inches in diameter, was at the root. By planting this and treating it in the same manner, I hope to obtain potatoes of the size of a barrel.

I remain, very truly yours,

DR. A. AINSWORTH.

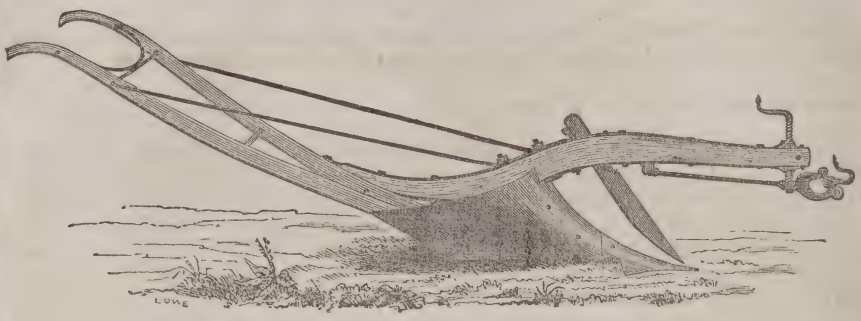
P. S.—Until now I never ventured to lay this matter before the public, but I am now fully convinced the soil may be rendered very prolific by manuring with limestone soaked with an acid. A. R.

Haverford Penn., Nov. 23, 1855.

A FRENCH LADY INSTRUCTING BRITISH CAVALRY.

On Wednesday, Mademoiselle Isabelle, a French lady, who has effected a revolution in the system of riding and horse-breaking in the Government cavalry schools of France arrived at the Maidstone cavalry depot. A general order had been issued by Lord Hardinge, desiring that every attention and obedience should be shown her, and under the sanction of this she commenced demonstrating her system at the riding-school.—Two young horses, two recruits, and two trained horses were placed at her disposal; and so far as she has yet proceeded with her instruction, it would appear that her plan is to affix to a horse's back a kind of break, from which proceed two reins on each side, which are affixed at different heights on the break, in addition to the usual bridoon rein and bit, and then, the horse's head being in position, she, with a whip, makes the animal go through certain initiatory movements, which are always practised in our service with a mounted man. She then teaches a recruit to effect this object in the same way, and afterwards mounts him on a trained horse, and instructs him how to achieve the same result. There is another difference in her method; many portions of the exercise which she teaches a recruit at once, in the English schools have not been thought proper for a man to do until he has been for some time under training. It is thought there will be no difference in the end between her method and that now in practice, but the result will be arrived at by a different and, perhaps, shorter method. She is pronounced "clever" by many of the old soldiers of the depot; and she, on the other hand, is understood to have highly praised the method pursued at Maidstone.

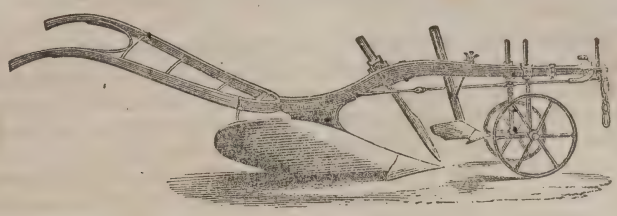
"The Mother's Breath is a blessing to a house," is said to be an Irish proverb. It is certainly a beautiful mode of expressing a great truth.



THE BINGHAM PLOUGH.

We have thought it would be satisfactory to many of our readers to get a view, even on paper, of the ploughs which attracted so much attention, and worked so admirably at the recent trials in France. We therefore procured engravings of two of them,—"The Bingham Plough," of which the above is a good representation, and the "Howard Plough," a cut of which, copied from the *Mark Lane Express*, is given opposite. We should have been glad to present an illustration of the "Morse plough," which was selected by the Canadian Commissioners to represent Canada at one of the trials at Trappes, and for its excellent performance, was awarded a gold medal. But we are not acquainted with the manufacturer, and have received no communication from him. We are therefore unable to place his plough before the public at present. Mr. Bingham has sent us one of his ploughs for trial in the spring, and we are glad to learn that a neighbor of the writer, J. Becket, Esq. imported last year, one of Howard's prize ploughs from England, and we shall therefore have an opportunity of testing this plough on Canadian soil, in competition with those of our own manufacture.

Mr. Bingham's plough is manufactured at Norwichville, C. W., and as we learn from a number of farmers who have used it, is much approved. This plough, as the reader will guess from its appearance, is adapted to sward or sod-ploughing, though it will on many soils answer equally well for breaking up fallow ground, &c. The proprietors have now in press a small work on the subject of ploughs and ploughing, with a full description of the principles and peculiarities of their plough, from which we may quote a few passages when it makes its appearance. We have brought this implement under the notice of the Canadian public not because we believe it to be superior to *all* its predecessors, either in form, workmanship, or cost, but because it is a home-made article—a circumstance which, other things being equal, will always command our preference—because it behaved well and attracted notice in competition with the most celebrated implements of the old world, and because it appears to us to combine all the best points of a good plough suited to this country with something peculiar to itself.—As we said in a previous number, after we have tried it in the field we shall speak more confidently.



HOWARD'S PRIZE PLOUGH (ENGLISH.)

The above is a representation of the plough which as we understand the awards, received the highest prize at the late World's Fair in Paris. The official awards are not yet published in detail, but from the various statements that have appeared from time to time, we gather that the "Howard plough" was considered superior to all others in one point, viz: *lightness of draught*, and equal to the best in the execution of its work. As we have remarked in reference to other implements, the decisions on such occasions will not be accepted by practical farmers as "final and conclusive" in regard to the general merit, or even the comparative merit of any agricultural implement or machine. There are so many elements, so many conditions to be considered in all questions of this kind, that an absolute judgment in favor of any particular form or combination is of little weight

We have no doubt that the Howard plough upon English soil, and under the conditions which must there be met, is a good implement,—probably superior to any that has preceded it. We confess that so far as one can judge from an engraving, it differs very little from the prize plough of Ransome & Sims, an implement that stands high in England. The Howard plough imported by Mr. Becket, is a very heavy implement, and whatever may be its merits for lightness of draught in stiff soils, we much doubt that it will satisfactorily answer the conditions that must be encountered on ninety-nine out of every one hundred farms in this country. The price alone will be a serious obstacle. It is sold in England for £4 10s. sterling—but probably could not be made here for less than $35 or $40. As in the other case, however, we shall be better able to speak of its merits or defects after a trial in the field.

Song of the Autumn Robin.—It is worthy of remark, that none of the *old* robins resume their songs until the spring. All the music we are treated to from November to Christmas, is improvised by the young birds of the present year. Its freshness, joyousness, richness, and purity are inexpressibly delightful. Our little friends are honest. All we hear is genuine. They are happy; and they take care to let us know it, and feel it. Just now, it does one good to listen to "the autumn bird in russet coat." The little fellow seems to consider it his "mission" to attend us wherever we go; and to lighten our cares by joyously singing them away. In the garden, in the field, in the lanes, in the wood, in the farm-yard, in the barn, on the old shed—there he is, looking out for us! And how merrily does master Bob greet us! His salutation—how frank! I wonder what he would say to those formalists and "fashionables" amongst *us*, who exhibit two flabby fingers as conventional tokens of recognition and affection to visitors and friends!—*Kidd's Treatise on the Robin.*

CARE OF CHINA AND GLASS

The most important thing to do is to "season" either glass or China to sudden change of temperature, so that it will remain sound after exposure to sudden heat and cold.—Now, this is best done by placing the articles in cold water, which must gradually be brought to the boiling point, and then allowed to cool very slowly, taking a whole day or more to do it. The commoner the materials the more care in this respect is required. The very best glass and China is always well seasoned, "annealed," as the manufacturers say, before it is sold. If the wares are properly seasoned in this way, they may be "washed up" in boiling water without fear of fracture, except to frosty weather, when, even with best annealed wares, care must be taken not to place them suddenly in too hot water. All China that has any gilding upon it must on no account be rubbed with a cloth of any kind, but merely rinsed, first in hot, and afterwards in cold water, and then left to drain till dry. If the gilding is very dull, and requires polishing, it may now and then be rubbed with a soft wash-leather and a little dry whiting; but, remember, this operation must not be repeated more than once a year, otherwise the gold will most certainly be rubbed off, and the China spoilt. When the plates, etc., are put away in the China closet, a piece of paper should be placed between each to prevent scratches. Whenever they "clatter," the glaze or painting is sustaining some injury, as the bottom of all ware has its particles of sand adhering to it, picked up from the oven where it was glazed. The China closet should be in a dry situation, as a damp closet will soon tarnish the gilding of the best crockery.

In a common dinner service it is a great evil to make the plates "too hot," as it invariably crack the glass on the surface, if not the plate itself. We all know the result—it comes apart; "nobody broke it," "it was cracked before," or "cracked a long time ago" The fact is, that when the glaze is injured, every time the "things" are washed the water goes to the interior, swells the porous clay, and makes the whole fabric rotten. In this condition they will absorb grease; and being made too hot again, the grease makes the dishes brown and discolored If an old, ill-used dish be made very hot indeed, a teaspoonful of fat will be seen to exude from the minute fissures upon its surface. The latter remarks apply more particularly to common wares.

In a general way, warm water and a soft cloth is all that is required to keep glass in a good condition; but water bottles and the decanters, in order to keep them bright, must be rinsed out with a little muriatic acid, which is the only substance which will remove the fur which collects in them; and this acid is far better than ashes, sand, or shot; for the ashes and sand scratch the glass, and if any shot is left in by accident, the lead is poisonous.

Richly cut glass must be cleaned and polished with a brush like plate, occasionally rubbed with chalk; by this means the luster and brilliancy are preserved.

RECENT ENGLISH PATENTS.

Improvements in the Manufacture of Varnish.—This invention is intended to produce a superior quality of copal varnish. It is based upon the discovery that copal gum consists of two constitutive parts or ingredients, one of which is entirely soluble in oil and in essence of turpentine, and the other of which is quite insoluble in the substances employed in making varaish. It is this latter portion of ingredient which deteriorates the pellucidity and whiteness of the varnish, especially by taking a brown tinge, by boiling in a copper or other vessel, on an open fire, as the manufacture of var-

nish is usually carried on. Hence, the object of the present invention is to purify the gum copal, by extracting from it the insoluble part, either by means of ordinary distillation, or by means of a hot-water bath, or else by means of over-heated steam, by applying either of which, the insoluble part is volatilized and condensed in a suitable receiving vessel. The quantity of insoluble matter, viz., from fifteen to thirty per cent, of the gum copal acted upon, having thus been expelled, the remaining portion is left to cool or solidify, and is then ready for use, being perfectly soluble in both warm and cold oil, turpentine, and similar matters, with which it will produce a quality of varnish superior to that which is manufactured in the present way.

Improvements in the Manufacture of Soap.—This invention consists in peroxidizing any oxide of iron that may be present in fatty materials, acid or not acid, undergoing the process of saponification by the injection of air or oxygen,– removing the peroxidized iron by means of any vegetable or other acid or principle (such as tannic or gallic acid) capable of combining with it, so as to form an ink or inky solution, and afterwards making soap with the fatty materials thus purified or bleached.

The manner of carrying out this invention is as follows: By means of a force pump or other suitable agent, air or oxygen, in a heated or cold state, is injected into the mass through a perforated coil of pipe in the body of the vessel, which should be made of wood, or lined with sheet-lead; and this injection of air or oxygen is continued so long as may be considered necessary; the time varies according to the degree of oxidation already existing, and can only be ascertained by taking samples and by practice. An infusion or solution of sumach, gall-nuts, or other material capable of combining with the peroxidized iron existing in the materials under operation, is then added to the mass, and the whole is well stirred together; after which the inky solution is drawn off from the vessel, and the materials are boiled, for about two hours, with a like quantity of pure water, which is afterwards drawn off, and with it any of the inky solution that may have remained in the materials. The soap-making is then proceeded with, and the process completed in the ordinary manner.

The purified soap produced by this invention will be found suitable for dyers, scourers and others who require a soap free from iron,—the presence of which is, in many cases, highly injurious to many descriptions of colors.

CONSTRUCTION OF THE PLOUGH.

The Implement Committee of the N. Y. State Fair, from whose report we have made extracts in our last, make the following sensible remarks in reference to the principles on which ploughs should be constructed:—

"Every agricultural improvement should be adapted in form and construction, to the purposes for which it is intended. The plow ranks foremost in use and importance with the farmer, and it differs materially with his labors whether it be illy or appopriately adjusted.

"The ground should be plowed to a sufficient depth, varying with the nature of the soil; the furrow should be well turned—it should be straight; and in the performance of its work, the plow should be so constructed as to be of light draft, of steady, even motion, requiring the least possible labor to the plowman and team.

"We have no doubt but that some improvements, in the construction of the plow, are as yet unattained, which are important to the desirable performance of this portion of agricultural labor. A defect of some plows is palpable in too abrupt wedge, formed by the share and mold board, by means of which much power is lost, and the motion

rendered unequal. In all cases the plow should be so arranged as to stand and work level; the rise from its point to the heel of the mould board, should be gradual, so as to cut and lift the furrow slice by an easy progress, and its course through the soil should be a steady level, and of easy guidance and draft. For this end the plow should be constructed with proportionate length from the point to the heel of the mold board with the width of the wing of the share, so as to avoid too great friction, and handles (horizontal measure) of sufficient length to ensure easy holding and guidance. The ease and steady motion of the plow is also secured by observing the "line of the draught;" this depends upon the adjustment of the beam, the clevis and chain or traces, so that the plow is caused to run even and steady, and to press equally all along its base. The wedge of the plow ought to be more blunt or gradual as it is intended for pulverizing the soil or for turning over the heavy sod; and the d scriminating mechanic will adjust the implement for the particular use for which it is designed—while those who never discriminate will continue to vend such as we have in too common use, and with which we labor hard with very unsatisfactory results."

GROUND AND UNGROUND—COOKED AND UNCOOKED FOOD.

In a communication from the Society of Shakers, at Lebanon, New York, in the Patent Office Report, we find the following upon the relative value of ground and unground, cooked and uncooked corn for feeding and fattening cattle, &c.

"The experience of more than 30 years leads us to estimate *ground corn* at one-third higher than unground as food for cattle, and especially for fattening pork; hence it has been the practice of our society for more than a quarter of a century to grind all our provender.

"The same experience induces us to put a higher value upon cooked than upon raw meal; and for fattening animals, swine particularly, we consider 3 of cooked equal to 4 bushels of raw meal.

"Until within the last three or four years our society fattened annually for 30 years from 40,000 to 50,000 pounds of pork, exclusive of lard and offal fat; and it is the constant practice to cook the meal, for which purpose 6 or 7 potash kettles are used."

The Shakers are a close-observing, calculating people, and go in for the practical realities of life and therefore, in the economy of food, must be presumed to be good judges.

BRINE A POISON.—M. Reynal of the Veterinary School at Ayort, France, communicated to the Imperial Academy of Medicine in May last, the result of investigations upon the poisonous properties acquired by brine, after a considerable length of time, in which pork or other meats had been salted or picked. Although the nature of the poison is involved in considerable obscurity, its existence is clearly demonstrated. The poisonous properties are acquired in two or three months after the preparation of the brine, and its use then, mixed with food for any length of time, even although in small quantities, may produce death. A simple solution of salt in water, after the same length of time, does not produce the same effect. The poison acts as a local irritant, exciting violent intestinal congestion and inflammation: it likewise increases the secretion of the skin and kidneys, and exerts a direct effect upon the nervous system, giving rise to trembling, loss of sensation, convulsions, &c. Experiments were tried with it, in the veterinary school, upon horses, dogs, and pigs. As brine is sometimes used a second time for pickling, and for other purposes, these facts should be remembered.

THE REWARDS AND DEATH OF THE AUTHOR OF "HUDIBRAS."

Chilled by the hollowness of patronage, even the applause of the public did not inspire him with a sufficient motive to literary exertion; and it may be concluded from his long silence that he laid aside his work in disgust. How he was occupied between 1663 and 1678, when he published the third part, does not appear. Aubrey, who is copied by Wood, says that he was Secretary to the Duke of Cambridge, and that he might have had better employment, but that his expectations were too ambitious; and so, at last, he had no employment at all. How far this account is likely to be true, may be in some degree conjectured from the following anecdote, related by Major Packe: "Mr. Wycherly had always laid hold of any opportunity which offered of representing to the Duke of Buckingham how well Mr. Butler had deserved of the Royal Family by writing his inimitable 'Hudibras;' and that it was a reproach to the Court, that a person of his loyalty and wit should suffer in obscurity, and under the wants he did. The Duke seemed always to hearken to him with attention enough; and after some time undertook to recommend his pretensions to his Majesty. Mr. Wycherly, in hope to keep him steady to his word, obtained of his Grace to name a day when he might introduce that modest and unfortunate poet to his new patron. At last an appointment was made, and the place of meeting was agreed to be the Roebuck. Mr. Butler and his friend attended accordingly: the Duke joined them; but as the —— would have it, the door of the room where they sat was open, and his Grace, who had seated himself near it, observing a pimp of his acquaintance (the creature too was a knight) trip up with a brace of ladies, immediately quitted his engagement to follow another kind of business, at which he was more ready than in doing good offices to those of desert, though no one was better qualified than he was, both in regard to his fortune and understanding, to protect them; and, from that time to the day of his death, poor Butler never found the least effect of his promise." This highly characteristic anecdote is much more probable than the vague report of Aubrey; and the character drawn by Butler of the Duke of Buckingham is conclusive of the fact that he could never have received any favours at his hands. It is impossible to conceive that, if Butler had been Secretary to the Duke, or had been under any kind of obligations to him, he would have singled him out for special reprobation, in the only direct personal satire he is known to have written. The portrait transcends in severity the well-known lines on the same subject by Dryden and Pope. There is reason to believe that Butler at one period, visited France; nor is it improbable that he may have also gone into Holland; a supposition, however, which rests on no better evidence than his satirical description of the country. In 1678, he published the Third Part of "Hudibras," and the next notice of him closes the struggle of his life. He died on the 25th September, 1680, in Rose-street, Covent Garden. There are different accounts of the immediate cause of his death; but they all agree in the fact of his poverty. Chambers says, that he starved owing to his pride; Aubrey tells us that he was much troubled with gout, particularly the year before, not stirring out of his chamber from October to Easter, and that he died of consumption; and Oldham speaks of the fever that terminated his sufferings. The expenses of his interment were defrayed by his friend, Mr. Longueville, who had in vain endeavoured to obtain a subscription to deposit his remains in Westminster Abbey. He was buried in the churchyard of St. Paul's, Covent Garden, the service being read by Dr. Simon Patrick, at that time Rector of the parish, and afterwards Bishop of Ely. The spot had been selected by Butler himself, in the north part, next the church, at the east end. "His feet," says Aubrey, "touch the wall; his grave, two yards distant from the pilaster of the door (by his desire), six foot deep. About twenty-five of his old acquaintances at his funeral; I myself being one."—*Bell's Memoirs of Butler in the Annotated Edition of the Poets.*

When Philip Henry, the father of the great commentator on the Bible, sought the hand of the only daughter of Mrs. Mathews in marriage, an objection was made by her father, who admitted that he was a gentleman, a scholar, and an excellent preacher, but he was a stranger. "True," said the daughter, who had well weighed the excellent qualities and graces of the stranger, "but I know where he is going, and I should like to go with him,"—and they walked life's pilgrimage together.

ON THE FEEDING OF CATTLE.

Cattle cannot be properly fattened for the market without proper materials. In the first place, it would be folly to attempt any system of feeding with cattle of an inferior breed; for all the care and management possible would not make them fat at an early age. Animals intended for feeding should be of a good breed, fine bone, good points, handling well, and possessing aptitude to fatten early. Short-horns or fine crosses can be made sufficiently fat for any market, at two years old, without any extra food or pampering. Calves, for the first two or three weeks, should have daily about a gallon and a-half of new milk from the cow; for the next following three or four weeks the quantity should be increased to two gallons; and from that period until three months old, two and a-half gallons should be the daily allowance. At two months they will learn to eat a few sliced Swedish turnips, or a little fine clover hay. They should be kept clean and dry, and not too close; and if early calved, should be placed in a loose house. As the season advances, a little yard, and shed well sheltered, with a southern exposure, should be provided. About the beginning or middle of May, according to the state of the weather, they should be turned into a field, with plenty of grass, and a temporary shed to protect them from cold or wet. They should be weaned at twelve weeks old, and the oldest calves separated, but not mixed with cows or other cattle. If kept in a calf park, cut clover must be given them in racks, as soon as ready. They cannot be too soon put on clover foggage, or clover stubble. When turnips are ready, the animals should be brought to eat them on the fields, and afterwards put into yards on a full allowance, say in October. The white globe variety is the best to commence with. The tops and tails should be taken off, and the bulbs cut, and given to the animals in boxes. They will do well on white turnips till January, when yellows should be substituted, finishing the winter with swedish, all cut throughout. A little hay or oil-cake would be beneficial; but they will be in fit condition to turn to grass if fed and attended to as pointed out. In order to make cattle sufficiently fat and rich at two years old, they should either be fed on new grass, well planted with red and white clover, particularly the former, or placed on old rich pastures. New grass is to be preferred for year-olds, which may be put to grass about the first of May, or sooner, if the season is early. A quantity of white early globe, or tankard turnips, should be sown about the end of May, which will be ready for eating about the middle of September, or sooner; when ready, a few to be given in the pastures, and if they get clover forgage so much the better. Early in October the animals should be put into the yard on white turnips for a month, and afterwards yellows till January; when Swedes and plenty of fine oat straw should be supplied. The turnips must always be cut. With this treatment continued to April, short-horns will be sufficieetly fat.

As to the different modes of feeding in yards, box-feeding, and tyeing up, there is much diversity of opinion. Tyeing up, or house feeding, is not recommended, particularly for young cattle. Box-feeding, no doubt, must be a good practice; but short-horns, and other quiet tempered cattle, feed as well in yards as anywhere, due care being taken that too many are not put together. Small yards, with two animals only in each, always do well. A serious objection to box-feeding is, that one beast never lies so contented and quiet as when supplied with a companion. These little sheds ought to be deep and not high in the roof, but well ventilated. A small yard should be attached, with troughs for the turnips, which must be given three or four times a day, fresh cut from the pits. Frosted turnips should never be given. Troughs or feeding-boxes must also be provided inside, in case of very hard stormy weather. Fine oat straw will be required at least twice a-day. Fattening animals should be well bedded with clean dry straw. If hay can be spared for eating in place of straw so much the better. Plain and careful feeding, with such high-bred animals as short-horns, or right crosses, is the best paying system; but if beans or other grain are low in price, it will pay to use such

food with oil-cake, which produces both finer quality, extra weight, and more tallow. This must, however, be left to the discretion of feeders. This system of feeding short-horns, and judicious crosses, is given to show that, by proper breeding, attention to suckling the calves, and regular feeding throughout, this object can be attained, with the right kind of cattle, on plain and substantial food. The animals may be fattened quicker by giving calves oil-cake or grain, when they would be fit for the butcher at twenty or twenty-one months old, or even at eighteen months, if oil-cake, is supplied immediately after being weaned, and continued with grain till eighteen months. Boiled beans, or even bean-meal, which is cheaper feeding than oil-cake, might be substituted, with equally successful results. With high feeding, short-horns can be easily made fifty stones imperial and upwards at eighteen months old.

Breeders who feed their own stock will thus see the advantages of good breeding, and also the profits; for if cattle of the improved breeds can be fattened at two years old, and weigh as heavily as the old coarse breeds at three and four years old, it is surely their object to cultivate only those kinds, which are the most remunerative, and give the quickest return, and greatest profit. Although the feeding of cattle at two years old is not yet so general as it ought to be, it is gradually increasing, and in time will become general. Several new systems now pursued in feeding cattle might here be pointed out; but as the art of feeding is so well understood, any further remarks on this point will be superfluous.—*Breeding and Economy of Live Stock, by James Dickson.*

GALVANIZED WIRE CORD FOR DRYING LINES.

Sir,—In your paper of 29th ult., a correspondent asks if galvanized wire would do as a substitute for cord for drying lines, and you reply it would require to be painted ; therefore, gutta percha would be preferable.

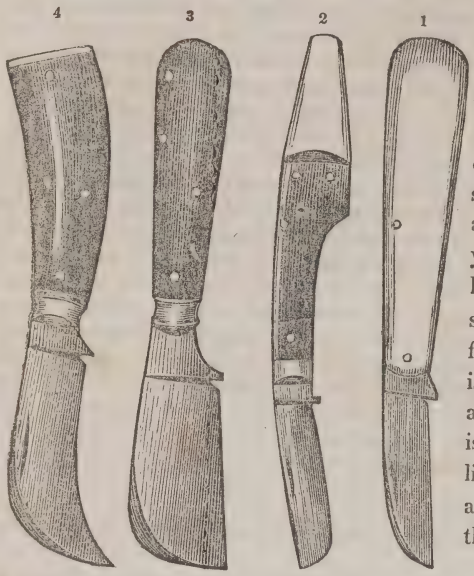
From our use of gutta percha for various purposes, we should say it is much too liable to break to admit of its use for drying wires ; but be this as it may, we are able to state that your correspondent may use the galvanized wire cord manufactured by us without the necessity of painting it.

This galvanized cord will stand much longer, and prove much cheaper, than any thing else he can adopt as drying line. Yours, &c., F. Morton & Co., *Liverpool, 4th January.*

[It appears to us to be a well established fact that the acid in the air dissolves and corrodes the zinc by which iron is galvanized, and, therefore, in process of time, the iron is exposed to oxidation, to prevent which the galvanized wire should be and usually is painted, which preserves it from the action of the atmosphere, and thus both are preserved. We know from the above cause structures covered with galvanized iron soon become perforated, when not timeously painted, and cannot suppose an exception in the case of galvanized wire cord.—[*Irish Far. Gazette.*

Apple Trees from Cuttings.—I have noticed that every once in a while some old notion is brought out as something new, and goes the rounds of the papers as if it had not been heard of before, although it may have been tried and found wanting.—Such a thing I noticed lately in the statement that some French Horticulturist had found that trees might be propagated by inserting the end of a scion into a potato and burying it several inches deep, so that only the top of the shoot should appear above the ground. I saw the same statement some four and twenty years ago, and tried the experiment repeatedly without success in a single instance, except in the case of those trees that may really in any case be propagated by layers. With apple and pear trees the failure was invariable. Others have met with the same result, yet I think it was with regard to fruit trees of this kind that this mode of procedure was recommended. Such fallacies ought to have an end.—[*S. W., in Granite Farmer.*

PRUNING AND BUDDING KNIVES.



As the season for garden operations is not many weeks-distant, we give cuts of some of the tools that are found very convenient, and are now sold at a reasonable price. Nos 1. 3. and 4. are a good and convenient form for pruning young trees and are made strong and heavy for that purpose. No. 2, represents the best and most approved form for budding. The edge of the blade is rounded at the point, and will shut up as a pocket knife. At the other end is fixed permanently a thin flat ivory lifter, with which the bark is loosened and raised, after being cut to receive the bud.

PRUNING CHISEL.

The blade of the saw is about 12 inches long, attached to the blade of the chisel at one end, and to the socket of the chisel handle at the other end. The chisel is 3 inches wide by 4 inches long, made thin and of the best cast steel. A wooden handle of convenient length is inserted in the socket handle, enabling a person to stand on the ground and thin his trees at his convenience.

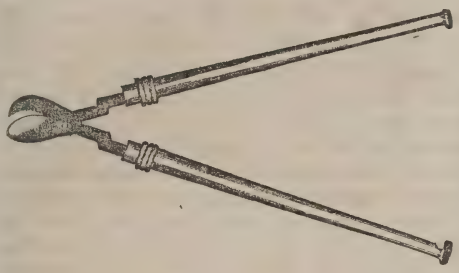
BILL HOOK.

This is a good kind of Bill Hook for cutting small bushes, brambles, &c., and is used with one hand.

SLIDING PRUNING SHEARS.

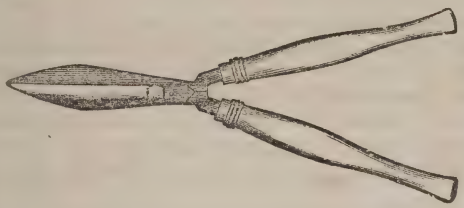
The cut represents a small, light Sliding Shears, very useful for trimming box-trees and bushes, as well as for other purposes.

BRANCH SHEARS.



These are very strong, and having long wooden handles, may be used for cutting large branches from trees, shrubbery, hedges, &c.

GARDEN OR HEDGE SHEARS.



This is another variety. It has the pruning notch, which is of considerable advantage when used in trimming hedges, &c.

From the New England Farmer.

HOW TO GET FRUIT TREES TO YOUR LIKING.

MR. EDITOR:—In the fall, October or November, take a branch of an apple or pear tree, such as suits your taste, take off down to the third year's growth, cut it smooth and rub it on a red-hot iron so as to scorch and shut the pores of the wood thoroughly; then bury in the ground all but the last year's growth. If placed in good ground, and well taken care of, you will have fruit in five or six years. I have sometimes dipped the lower end in melted rosin, but think burning preferable. I have a tree before my door that is nine feet high and well proportioned, that I took from a graft four years ago; to this rosin was applied, and whatever sprouts sprung up the next summer were bent down and became roots. We can get fruit considerably quicker this way than from seeds, and we know what we have growing, and when grown the whole tree is of the same kind, and whatever sprouts come from the roots in after years can be transplanted without grafting. In case of a drought the first year they should be watered.

ALTERNATE CROPS.—The greatest quantity of grain produced in a rotation, is not *alone* a proof of its being the best system; a *large* quantity of meadow would yield *much* hay. It is a sin against good husbandy to sell off the hay from a farm, unless it be with great caution, where the farm is near a large town, from whence, or otherwise, it can be plentifully supplied with manure. Numbers of cattle well-fed and well-littered, give the manure, in addition to other manures, requisite for invigorating the soil; but numbers of cattle cannot be kept in good condition throughout the year, unless clover and grass, as well as hay and straw, abound. The summer and winter food must have a due proportion to each other, and the fields of grain are not to exceed the fields of meliorating crops,—*these* preserve the soil, as well as produce crops; but grain *reduces* the soil in producing the crops. Aim at income from *live stock*, which *improves*, rather than from *grain*, which *impoverishes* your land.

COOKERY—EFFECTS OF HEAT UPON MEAT.

A well-cooked piece of meat should be full of its own juice or natural gravy. In roasting, therefore, it should be exposed to a quick fire, that the external surface may be made to contract at once, and the albumen to coagulate, before the juice had time to escape from within. And so in boiling. When a piece of meat or mutton is plunged into boiling water, the outer part contracts, the albumen which is near the surface coagulates, and the internal juice is prevented either from escaping into the water by which it is surrounded, or from being diluted or weakened by the admission of water among it. When cut up, therefore, the meat yields much gravy, and is rich in flavour. Hence a beefsteak or a mutton-chop is done quickly, and over a quick fire, that the natural juices may be retained. On the other hand, if the meat be exposed to a slow fire, its pores remain open, the juice continues to flow from within, as it has dried from the surface, and the flesh pines, and becomes dry, hard, and unsavory. Or if it be put into cold or tepid water which is afterwards gradually brought to a boil, much of the albumen is extracted before it coagulates, the natural juices for the most part flow out, and the meat is served in a nearly tasteless state. Hence to prepare good boiled meat, it should be put at once into water already brought to a boil. But to make beef-tea, mutton-broth, and other meat soups, the flesh should be put into cold water, and this afterwards very slowly warmed, and finally boiled. The advantage derived from simmering—a term not unfrequent in cookery books, depends very much upon the effects of slow boiling as above explained.--*Professor Johnston's Chemistry of Common Life.*

From the Horticulturist.

TREATMENT OF THE HEMLOCK.

In a former number we promised to give the results of some experience in treating that most beautiful of our native evergreens, the hemlock. Its value and importance is attracting much attention, both as a single tree, a screen, a hedge, or a shrub, and we know nothing more deserving attention from American planters.

It is a difficult tree to procure in many neighbourhoods, (though it will be seen several extensive nurserymen advertise it) and where that is the case it may be grown from the seed, which is procurable from dealers in this vicinity. These are to be mixed with sand, if you cannot plant them immedately. As soon as the spring opens, make a bed on the north side of a fence, where it will be shaded the greater part of the day ; the bed should be composed of one-third sand, one-third good loam, and one-third light leaf-mould, well incorporated and sifted. Plant the seeds in drills, and cover the bed with a little old spent tan, or more leaf mould, to keep it light and moist ; water it regularly every evening in dry summer weather to prevent the young seedlings from dying off. The young plants may be moved as soon as they have vigor enough to take the positions they are designed for.

If they can be obtained from the woods, about eighteen inches in height, time will be saved, but in this case it will be useless to remove them without a covering of earth for the roots brought with them ; with a little care there is no difficulty in this ; to make the removal certain, sprinkle water from the rose of a watering-pot upon the roots after you have got them into your vehicle. The operation should be accomplished about the time they are first putting forth their beautiful young growth, and on a cloudy day. In planting them, use the same soil as recommended above for the seeds, and mulch the roots for a foot or two round with stones ; these are to be raised every year, and a little additional leaf mould put on, and the stones replaced, till the plant has made a growth of several years.

The best examples of hedges of hemlock that have anywhere come under our notice, are those of Moses Brown, Esq., of School-house lane, Germantown, Philadelphia. They have been a labour of love, and the result of careful culture for many successive years ; here may

be seen hedges of various ages and modes of planting. At first the double row, and plants one foot apart, was adopted; this plan has produced handsome thick-set hedges, but it consumes a great number of plants, and *a single row, two feet and a half apart*, has been found by actual repeated experiment, to serve the purpose equally well, and to possess the advantage of exhausting the soil much less. Mr. Brown brings his trees from their native habitat near by, and subjects them to the shears at once to give them a trim look, and to induce a close habit. They make a little progress for the first two years, but after that their beauty becomes apparent, and they rapidly assume character and importance. Mr. Brown mulches all his hemlock hedges with stone, and feeds them annually with leaf mould. He does not trim them more than once a year, and that in the spring, preferring the luxuriant full appearance which nature produces; but where a set hedge or solid-looking wall is desired, we should recommend, as heretofore, a close cutting in September.

As a single shrub, regularly kept down by the shears, the hemlock is extremely beautiful, as it also is as a screen without much use of the shears; as a single tree, nothing need be more ornamental, and standing alone their habit of growth is highly picturesque. A visit to Mr. Brown's premises in the morning, when the dew is on the trees, or rather a shower of rain, when the sun shines through the branches of these beauties of nature, is highly gratifying; so fond is he of the hemlock, that his place is a fairy show, embracing the perfect large tree and all the various forms it is capable of assuming. When once established, the hemlock, though not quite so rapid in growth as the Norway Fir, is by no means to be classed with the slow-growing evergreens, and remember it *is* green and perfectly hardy.

Guano: its History.—Guano, as most people understand, is imported from the islands of the Pacific—mostly of the Chincha group off the coast of Peru, and under the dominion of that government. Its sale is made a monopoly, and the avails, to a great extent, go to pay the British holders of Peruvian government bonds, giving them, to all interests and purposes, a lien upon the profits of a treasure intrinsically more valuable than the gold mines of California. There are deposits of this unsurpassed fertilizer in some places to the depth of sixty or seventy feet, and over large extents of surface, These guano fields are generally conceded to be the excrements of aquatic fowls which live and nestle in great numbers around the islands. They seem designed by nature to rescue, at least in part, that untold amount of fertilizing material which every river and brooklet is rolling into the sea. The wash of alluvial soils, the floating refuse of the field and forest, and, above all, the wasted materials of great cities, are constantly being carried by the tidal currents out to sea. These to a certain extent, at least, go to nourish, directly or indirectly, submarine vegetable and animal life, which in turn goes to feed the birds whose excrements at our day are brought away by the ship-load from the Chincha islands. The bird is a beautifully-arranged chemical laboratory, fitted up to perform a single operation, viz.—to take the fish as food, burn out the carbon by means of its respiratory functions, and deposit the remainder in the shape of an incomparable fertilizer. But how many ages have these depositions of seventy feet in thichness been accumulating? There are at the present day countless numbers of the birds resting upon the islands at night; but, according to Baron Humboldt, the excrements of the birds for the space of three centuries would not form a stratum over one-third of an inch in thickness. By an easy mathematical calculation, it will be seen that at this rate of deposition, it would take seven thousand five hundred and sixty centuries, or seven hundred and fifty-six thousand years, to form the deepest gnano bed! Such a calculation carries us back well on towards a former geological period, and proves one, and perhaps both, of two things—first, that in past ages an infinitely greater number of these birds hovered over the islands; and secondly, that the material world existed at a period long anterior to its fitness as the abode of man. The length of man's existence is infinitesimal, compared with such a cycle of years; and the facts recorded on every leaf of the material universe ought, if it does not, to teach us humility. That a little bird, whose individual existence is as nothing, should in its united action, produre the means of bringing back to an active fertility whole provinces of waste and barren lanks, is one of a thousand facts to show how apparently insignificant agencies in the economy of nature produce momentous results.

Duties in general, like debts, give more trouble the longer they remain unpaid.

ART OF MILKING.

The art of milking well is not taught in a hurrry. It requires long practice to milk properly, and therefore all the young people on a farm ought to be shown how the labor should be done. It is quite important that this branch of the dairy should be particularly attended to, for a good milker obtains at least a quart more from the same cow than a poor milker.

The first lesson to be taught to young people is gentleness and kindness to the cows. They never need be treated harshly, in case the business is properly commenced. Cows that have been caressed and uniformly well treated are fond of having the milk drawn from the udder at the regular time of milking, for it gives them relief from the distention of the milk ducts.

Let young people be put to milking the farrow cows first, or such as are to be soon dried, and then the loss from bad milking will be less injurious; the hand should extend to the extremity of the teats, for the milk is then drawn easier. They should be taught to milk as fast as possible. More milk is always obtained by a rapid milker than by a slow one. They should therefore be taught to think of nothing else while milking, and no conversation must be permitted in the milk-yard. They should sit up close to the cow and rest the left arm gently against her shank. Then if she raises her foot on account of pain occasioned by soarness of the teats, the nearer the milker sits to her, and the harder he presses his left arm against her leg, the less risk will be run of being injured.

Cows may be taught to give down their milk at once—and they may be taught to hold it a long while, and to be stripped indefinitely. The best way is to milk quick and not use the cow to a long stripping or an after stripping.

WINTER SHELTER FOR ANIMALS.

Solomon says—"A righteous man regardeth the life of his beast." It is remarkable that on a very large majority of our farms, far less attention is paid to the comfort of our domestic animals during the long period of their confinement during the winter months, than the well known humanity of our farmers in other matters, would seem to insure. Liebig, the distinguished German chemist says that our clothing is an equivalent for food; and every discerning and reflecting person must have received a very striking and impressive corroboration of the truth of the observation in the plain fact that an animal comfortably sheltered, and provided with litter and bedding, consumes, during winter, less food by nearly one half than an animal of the same size and kind will require if uncared for and exposed. We have frequently been surprised and shocked by what appears an unmerciful regardlessness of the comfort and health of their domestic animals, particularly their young stock.

Every correct farmer will study the comfort of every animal under his care—not only from a common principle of humanity, which is, or should be, instilled into him by the gentle and humanizing character of his pursuits, but from a healthy and laudable regard for his own interest. A facetious writer once said, "misery never yet fattened any one," and cold and hunger are miserable bed-fellows. Good barns, comfortable sheds, "cotes," for sheep and swine to go to when they please, are among the most elegant embellishments of which a homestead, in a rural district can possibly boast.—[*New England Farmer.*

It is asserted that in the English language proper, apart from technical and scientific terms, there are 20,500 nouns, 40 pronouns, 9,200 adjectives, 8,000 verbs, 2 600 adverbs, 68 interjections, and two articles, in all alone, 40,000 words. According to Webster's dictionary there are one hundred thousand words.

EDITORIAL MISCELLANY.

Drain Tile Manufactory.—We are glad to learn that Wm. Lee, Esq., an enterprising farmer near this city, has made arrangements with Mr. Brown, a practical potter, &c., of Bowmanville, to establish a Tilery on Mr. Lee's farm next spring. Mr. Brown has one of Scragg's Tile machines in efficient working order, and we believe it is expected, they will be able to supply pipe drain tiles of 1½ inch to 2 inch bore, for about £3 per thousand. We trust they will find the demand sufficient to warrant a reduction of price to about $10, in which case every farmer whose land needs underdrains, would be justified in incurring the expense. This is about the price such tiles are sold for at Albany, Waterloo, &c., in the adjoining State.

Mr. Brown's Tiles and earthenware received the first prize at the last Provincial Fair.

Agricultural and Horticultural Central Club.—We are glad to announce the formation, under favorable auspices, in this city, of a Farmer's and Gardener's Club with the above title. The want of such an organization, at this central point, has long been felt. There are in the neighborhood of this city some of the best practical gardeners in the country, as well as numerous amateurs whose productions do great credit to their skill and energy. There are also many intelligent agriculturists in and near Toronto, who are able to discuss many practical questions with ability, and can, no doubt, communicate facts that will be listened to, and when reported by the Press, be read with interest in all parts of the province.—There are also gentlemen of high scientific attainments in this city, whose co-operation will be most desirable in the meetings of such a club. It is expected that enterprising farmers at a distance, now that railway communication is established in various directions, will become members and attend, and take part in the discussions. It is in contemplation to establish a Library and Museum. We presume, however, that the Library and Museum which the Board of Agriculture are authorized by law to establish at Toronto, will be made available for both bodies. The condition of membership is payment of $1 on or before October next.

The officers are:—*President*, G. W. Allan, Esq.; 1st *Vice*, E. W. Thompson, Esq.; 2nd do., James Fleming, Esq.; *Secretary and Treasurer*, Prof. Buckland.

The Executive Committee is composed of thirteen gentlemen, most of whom are practical farmers or gardeners.

The first regular meeting will be held on Tuesday, 4th March in the Court House Toronto. The subject for consideration is the best mode of *Fencing* adapted to the present wants of this country. Mr. William McDougall, at the request of the Club, consented to open the discussion.

Fairs.—An Agricultural Society in the County of Simcoe, asks us how a "Selling Fair" may be legally established. We believe the granting of charters for such a purpose is one of the prerogatives of the Crown, and therefore, we presume, the proper course will be to petition the Governor General. The petition should set forth the necessity for such an "institution" in the vicinity, &c., and a Royal Proclamation, after due enquiry, will, no doubt, issue.

The writer drafted a clause in the Agricultural Act of 1852, by which Municipal Councils were authorized to establish such Fairs in each township, but the Legislative "wisdom" thought the present clumsey plan preferable.

Hedges, &c.—We have received two or three letters on the subject of the Osage Orange and other Hedge-plants, which will appear in the next number. As the subject of "Fencing" is to be discussed in a few days,

by the Farmers' and Gardeners' Club, recently established in this city, we thought it better to present the subject to our readers in connection with the report of the discussion.

Agricultural and Horticultural Seeds.—As the season of sowing will soon arrive, we can confidently recommend to the notice of our readers Mr. Fleming's advertisement in the present number. We hear many complaints in different part of the country that seeds purchased at some of the stores were either untrue or would not properly vegetate. As root-culture and gardening are every year advancing in Canada, and the former being of essential importance to the improving farmer in the sustentation of his stock, the selection of pure and sound seed is a matter of the greatest consequence. Mr. Fleming, we know, imports largely from the most respectable houses in London and Edinburgh; besides growing a considerable quantity of some kinds himself, or under his own immediate direction. We believe he carefully tests the vitality of all seeds which he offers for sale. A concluding hint to our readers, not always sufficiently understood, or at least, attended to:—After you have procured true and sound seed, be careful to see that the indispensable conditions, of good culture and manuring are so far complied with as not merely to ensure the *generation* of the seed, *but a profitable crop*. It has long been a maxim among practical men, that in *root culture* especially, *the highest farming pays the best.*

Back Numbers.—In answer to the enquiries of several correspondents, we beg to state that we have still on hand a quantity of the January and February numbers, and will be happy to supply all the Subscribers they may send from the commencement ot the year.

Subscribers are coming forward rapidly, and we are grateful to many kind friends for their efforts. The *Agriculturist* should be laid in every Farmer's house, and we hope all who take an interest in the promotion of intelligent Agriculture, will aid in accomplishing this object.

☞ We direct the attention of our readers to the advertisement of Mr. S. Bates, Bellingham, Mass., with reference to Cranberry culture.

TORONTO MARKETS.

February 28.

Business on the Toronto Market since our last issue has been very dull, and no trading, except to supply immediate wants, has been going on. The peace rumours now so prevalent have had a great effect on the breadstuffs and stock markets, and will, before long, lower the prices of other articles. Dealers are very cautious about buying, and nothing of any importance will be done until the question of "Peace or War" is definitely settled.

Wheat has come in at the rate of about ten loads per day. The price during the early part of the month ranged from 7s. to 8s. 6d. Later, however, prices have fallen, and 5s. 9d. to 6s. 3d. are the ruling figures. Very little is coming forward, and farmers as well as dealers appear to be desirous of awaiting the issue of peace negotiations.

Flour.—Wholesale dealers in flour have stopped operating altogether, although there is a good deal offering. Millers who have purchased wheat at 8s. 9d. to 10s. are rather alarmed at the heavy fall in prices.—We have heard of several thousand barrels of No. 1 superfine offering at $5\frac{1}{2}$ to $5\frac{3}{4}$ ℔ bbl. Very little farmer's flour has been offering.—At the depots sales are made by retail at $7 to $8 ℔ barrel.

Oats have been plenty, at 2s. 6d. to 2s. 8d. ℔ bushel.

Hay has been selling at from $20 to $30 ℔ ton; the qualities being various, no definite price can be fixed.

Pork has been in demand for city consumption.—Several large importations all the way from Chicago have been made. Prime hogs sell at $6 a $7\frac{1}{2}$ ℔ 100 lb. Packing for export has entirely ceased.

Potatoes have been scarce, and have sold at 3s. 9d. a 5s ℔ bushel. It is probable that importations to a considerable extent will be made on the opening of navigation. Last spring several thousand bushels were exported from Toronto to Buffalo and Cleveland.

Butter has been scarce, and sales of fresh rolls are readily made at 1s. 7d, a 2s. 1d.—Tub Butter brings 1s. 2d. a 1s. 4d. ℔ lb.

In other articles there is no change to note.

THE

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THE AGRICULTURAL AND HORTICULTURAL CENTRAL CLUB.

SUBJECT—*Fencing.*

The first General Meeting of this newly organized body was held in one of the rooms of the Court House, in this City, on the 4th instant. There was a large attendance of farmers, gardeners, professional men and amateurs. G. W. Allan, Esq., (late Mayor) as President of the Club, occupied the Chair. William McDougall, Esq., Editor of the *Agriculturist*, opened the discussion. The subject was,—"The best methods of *fencing*, adapted to the wants of Canada."

Mr. McDougall said he regretted some person better fitted for the task, had not been chosen to introduce to that intelligent assembly the important subject they had met to discuss. But as he never wished to shirk any duty that might be imposed upon him, where the interests of Agriculture are concerned, he would briefly submit a few thoughts and statements for the consideration of the meeting, in the hope that they would be supplemented by more valuable information than he was able to impart. After congratulating the Chairman and gentlemen present on the very auspicious commencement of their labors, and declaring that no questions could be more interesting, more patriotic, or more generally useful than those which would come under the notice of the Club, he said he would pass as rapidly as possible over the notes he had prepared, in order to give all the gentlemen present—and he was happy to see so large a number—an opportunity of expressing their views. The subject for present discussion is of a very practical character It affords little scope for learned research, or scientific disquisition. It is nevertheless of great importance to the farmer, and any improvement that will lessen the expense, increase the efficiency, or render more durable, structures which in our system of mixed husbandry cannot be dispensed with, is well worthy the attention of a Farmers and Gardeners' Club. I shall submit the question for consideration under the following general heads:—

1. The necessity for fences in Canada.
2. Capital invested in them, &c.
3. Dead fences.
4. Live fences.
5. Conclusion, and attempt to answer the question.

1. That it would be impossible to do without fences in a country where each 200 acres, often each 100, or less, belong to a different proprietor, and where the soil is, with scarcely any exception, adapted to the production of grain, no one, with any show of reason, can affirm. In many parts of Europe, where large estates are owned by a single proprietor, and where only a portion,—and that perhaps a small one—is arable, the rest being pasturage, fences are "few and far between." The *in field* and *out-field* system of

enclosure may be practicable under such circumstances. The land which adjoins the habitation of the owner, and which produces the grain and vegetables for himself and dependents, and fodder for his cattle in winter, is enclosed; but as stock are never permitted to enter the *in-field* while the crops are growing, interior division fences are not required. Fencing is there reduced to its minimum. Again, where the land is parcelled out in small quantities to different proprietors, as in the eastern parts of France, fences are seldom seen. The owners are too poor to spare the land which would be occupied by them, or the money and labour that would be required to construct and repair them. A ditch, a row of trees, a few march stones, or particular single trees, serve to mark the boundaries of these small estates, and stock, if kept at all, must be confined, and their food brought to them. It is cheaper under such circumstances, to fence in the cattle, than the crops. In some parts of the valley of Connecticut, a system of *non-fencing* has been practised for many years. The annual overflow of that river compelled its adoption, and it is said the system proved so economical, that it has extended to the uplands in the vicinity, and some American writers strongly recommend the same system for other parts of the country. To preserve the crops, all animals running at large are placed under the care of a responsible person, who gives bonds to the town, or as we would say here, the township, to make good any injury they may commit. Every owner of animals pays this person so much per week for taking care of them. "It is," says the Editor of the American *Agriculturist*, "a pleasing sight to see a large herd of cows under the superintendence of one man, a couple of boys and two dogs, quietly browsing over open fields through the day, and as they return to the village, regularly stop at the domiciles of their respective owners for the night, and again gather together the next morning to renew their feeding abroad."

I need not stop to argue that such a system would be impracticable in most parts of this country. The social habits of the people, as well as the system of husbandry universally practised, would not tolerate it. The modern improved system of agriculture, demands the presence of stock. No farm can long maintain its fertility without a fair proportion of the domestic animals. "Whenever" says Mr. Stephens, "it was perceived that grain was more productively raised by the meliorating influence of grass on the soil; that grass land supported more stock when occasionally cropped with corn, and that the exuviæ of stock could manure land better than the art of man, the system of *out-field* and *in-field* was broken up. The ancient ring-fence that only surrounded the cultivated land, was then removed to the boundaries of the possession, and in its stead were constructed suitable enclosures, for the different crops raised in regular succession." As we have not yet discovered any practicable plan by which a dozen head of cattle, four or five horses and colts, fifty sheep—to say nothing of pigs, which outside of the pen, are a great nuisance and a very small profit,—can be kept upon an ordinary farm without fences, and as these animals cannot be dispensed with, it follows, that fences in this country at least, are a necessary evil.

2. We must then, direct our attention to the possibility of alleviating the burden of the evil, since we cannot remove it altogether. Now, sir, it appears to me, that we make many more fences than even our system of mixed husbandry requires. If one-fourth or even one-sixth of the fencing now considered necessary on our farms were dispensed with, it would save millions of dollars to the country. Perhaps sir, some members of this club never sat down and calculated the probable cost of the fences of Upper Canada? I have done so, and the amount is absolutely startling. Take the common rail fence as the standard. A farm of 200 acres, supposing, as the law requires, that your neighbors make half of the division fence, will take 560 rods to enclose it. I speak now of lots laid out as in the adjoining townships, 80 rods front by 400 deep. A more rectangular shape which has been adopted in the later surveys, would not require so much. If half the lot, or 100 acres, is cleared and divided into fields of, say, 10 acres, with a lane through the middle, 800 rods more must be added,—in all, 1360 rods of fence, on an ordinary 200 acre lot. A good rail fence should be nine rails high, including riders, with 2 stakes at each corner. Two lengths or panels will lay a rod. 1000 rails and stakes will make about 45 rods of fence; therefore 30,000 will be required to enclose and fence a 200 acre farm, half being woodland, in the ordinary way. A man will lay up and complete about 10 rods a day. Of course a man *can do* much more, but I speak of what usually is done.

Suppose the rails to cost, when delivered on the ground, $30 per thousand, we have for rails, stakes, &c.	$900
Labour of putting up	136
Total	$1,036

In this calculation nothing is allowed for clearing stumps, logs or stones from the line of fence; nor for gates, bars, &c. According to the last census there were in Upper Canada, 3,697,724 acres under cultivation. Leaving woodland out of the question, and assuming that it would cost $800 only, to fence each 100 acres, as above, we have nearly $30,000,000 as the cost of fences alone, in Upper Canada! It may be said that Canadian fences are not all equal to my standard, and that timber being on the spot, and of little value at the time, the rails did not cost $30 per 1000. But many thousand rods of fence have cost much more than I assume, and if you consider the number of times these fences have been renewed since their first erection, you will find that I am under rather than over the mark, as to the amount *now* invested in the fences of Upper Canada. In 25 years, or less, they will have been replaced at a cost that will approach $50,000,000! And thus, sir, will the process go on; every quarter of a century this enormous sum must be re-invested where it yields no interest, but is soon lost forever. If then we can introduce more durable structures; if we can reduce the number of fences on a farm, or substitute living fences for dead ones, even though they may cost a little more at the outset, what an immense benefit will be conferred upon the agriculture of Canada!

3. *Dead fences*—are universally resorted to in this country for the purpose of protection. The few instances in which live fences have been brought to a condition that they could be trusted to keep off intruders, are, except as an experiment, hardly worth notice. In a country just reclaimed from the forest, and where timber is the cheapest material, we must expect to see the fences constructed of timber. In many parts of Canada the common rail, of pine, oak, basswood or cedar, is the cheapest and best material within the farmer's reach, and the only question is, as to the best mode of placing it in the fence. On the subject of cutting and splitting rails; the season of the year; the age of the moon, &c., &c., there is extant a good deal of what would be called "learning," if it related to similar notions two thousand years old. I have known Dutch farmers, for instance, stipulate when giving leases, that basswood rails should be split in June, and the bark immediately peeled off. Experience, no doubt, has shown this to be a wise practice. Summer is also preferred for cutting other kinds of timber. It is believed to be more lasting than when cut during winter. The "snake-fence" is not a very attractive object to the eye, but when well made is, in my opinion, *the* fence "best adapted to the wants" of the man who is clearing up a new farm. Another form of rail fence is sometimes used, and though less capable of resisting lateral pressure than the worm fence, is in some situations preferable to it. The rails are laid between two posts, which should be of oak or cedar, driven into the ground, and held together at the top by a piece of plank, with two large holes through which the ends of the posts are thrust. The top rails should rest on the block. The advantages of this plan are obvious. The fence is straight, and therefore requires less timber, and occupies less ground. There is no harbor for weeds, and it is more agreeable to the eye than the crooked fence. The objections are equally obvious. Being kept upright by the stakes alone, and offering a large surface to the wind, it is very liable to be blown down. The stakes will spread when the ground is saturated with water, and let down the rails. An improvement, I think, might easily be made upon this fence, and though I have never seen it adopted, I intend to try a few rods in an exposed situation next season. I propose to make the block, which is usually laid under the end of each bottom rail, perform a double office, viz: keep the rail from the ground, and the stakes from spreading. This could be accomplished by boring two large holes through the block to receive the ends of the stakes, allowing them to pass into the ground. A third object would be attained by this arrangement. You would give your fence a lateral basis equal to the length of the block. Its power of resisting lateral pressure, whether of wind or animals, would be at least doubled, probably trebled. A cheap machine has been invented, to prepare the stakes as well as the holes, which I understand can be adjusted to any power, and operates with great expedition. I would bore two holes in the ground block for each post, mortising out the obstructing wood between, so as to leave the post as large as possible in and near the ground. By using durable wood, and a larger and longer block than is commonly employed for the purpose, I think a very neat, substantial, straight rail fence can

be constructed, that will cost but little, if any more, than a good worm fence. The "post and rail" fence is another variety worthy of notice. This has been much improved in the vicinity of Cobourg. Poles and sawed rails are used. The latter are made of a diamond shape, the ends rounded by machinery and placed in the posts in such a manner, as to present one of the acute angles to the descending rain. One advantage of this fence is, that any kind of hardwood may be used for the rails. The objection is, that like all other post-fences, it is expensive—liable to be deranged by frost—and when the rails begin to warp, they will, I fear, offer a great temptation to pigs to push through them. The common "post and board" fence is liable to similar objections, and, at the present price of lumber, is even more costly. But there is a way of avoiding the evil of winter "heaving"—a serious matter in all low soils—and, at the same time, saving one, if not two boards in the construction of the fence. The plan is as follows:—After clearing the line of fence, for a space of eight or ten feet, of stumps, stones, &c., you plant your posts from a foot to eighteen inches deep. Except in very stony soil, this can be expeditiously done with the post auger. Then, with a plough, you pass up and down each side of the posts, throwing the furrows toward them for a space of four or five feet. The process is repeated, until you have raised a bank at least eighteen inches high, and made two ditches of corresponding depth on each side of the posts. The spade is now used to level inequalities, and cut through any small ridges that may cross the line of fence. You may then nail your boards to the posts; if ten or twelve inches wide, three will be sufficient. Sow each bank with grass seed, and you will have not only a good fence, that will not be disturbed by frost, but you will also have a ditch at the side of each field, to carry off surplus water that may flow in that direction—a benefit second only to the fence itself. I consider this a cheap, durable, and efficient fence, and intend to make 100 rods of it as soon as the frost leaves the ground. This plan has been practised in the neighbourhood of Port Hope, with great success. I saw, last fall, in that vicinity, and also in the neighbourhood of Peterborough, long stretches of fence on this plan and was assured that it could be as cheaply made as any other description of post and board fence, and that frost never disturbed it. Its immunity from the effects of frost—the great enemy of all fences that penetrate the soil—depends upon an obvious principle: all the water being carried away from the posts, no sensible expansion of the soil takes place in freezing, and they are consequently not lifted from their bed.

I shall not attempt to describe those varieties of dead fence which belong to the "fancy" class. These can be constructed of any shape that the fancy of the owner may suggest, and cost any sum the length of his purse may warrant; but they are not within the purview of our present question. The wire fence belongs, in my opinion, to the fancy category. It has not yet proved itself worthy of adoption as a field-fence. The stone wall fence ought not, perhaps, to be passed over in a review of those adapted to the wants of Canada. Where stone is abundant, and timber dear, it may be advantageously employed—but even then it will be found expensive. It must have a good foundation, or the frost will soon crumble it to the ground.

4. *Live fences* must be looked to as our ultimate resort. It is in this direction that we ought to search for information, if we would confer real and lasting benefit upon our country. Feeling that facts and practical results would be more useful and more interesting than mere opinion, I took the liberty of addressing a few questions to gentlemen in different parts of the Province, who had attempted to grow hedges, and who, I was aware had had experience in the business in the old country. The time was rather limited for an extended enquiry of this sort, but I succeeded in obtaining answers from several gentlemen, whose statements are, I believe, worthy of your attention. The following copy of one of my notes will show the points to which I directed the attention of my correspondents:—

J. Beckett, Esq. MILLBANK FARM, Feb. 28, 1856.

Dear Sir,—You were kind enough to say that you would furnish me the results of your experience in growing hedges in this country, to be read before the Farmer's and Gardener's Club, Toronto, on the 4th March.

The following are some of the questions I have submitted to several gentlemen in different parts of the Province. They may serve to classify the answers received, although any facts not indicated by these questions, which were hastily drawn up, will be thankfully accepted.—

1st. What description of fence do you prefer for ordinary farm purposes?

2nd. Do you approve of live fences, and what do you use as a hedge plant?

3rd. Be so good as to describe briefly your mode of setting out and cultivating, &c.?

4th. What are the accidents to which live fences are subject in your experience, and how do you guard against them?

5th. How many years before your hedge becomes a good protecting fence?

6th. Have you had any experience in growing the Osage Orange?

7th. What is the cost per rod of planting a hedge on your plan, and how much per rod for each year, until it becomes a protecting fence?

8th. How does this cost compare with that of a substantial post and board fence as you make them?

9th. Have you tried the native Thorn of this country, and with what success?

By enclosing to me such observations as you may be able to make on the points indicated above by Tuesday next, you will much oblige me and confer a favour on the Club.

Yours, respectfully,

WM. McDOUGALL.

ARLEY LODGE, March 3, 1856.

Dear Sir,—In reply to your request of Saturday last, that I should supply you with such information as my experience warranted, on the subject of planting and training quickset hedges, I most willingly accede to your wishes, to the extent of my own individual experience, and remain,

Dear Sir,

Your very obedient servant,

JOSEPH BECKETT.

Wm. McDougall, Esq., Millbank Farm, Yonge Street.

To *Query No.* 1.—I have no decided preference for any description of fence yet introduced amongst us. I have adopted the post and board fence generally throughout my farm, but it is objectionable on account of the heavy expense attending its erection, its want of durability and its liability to be easily broken down by horses that are pastured in the contiguous fields. The English Quickset or Hawthorn, I have planted freely upon my farm, but with an unsatisfactory result, for reasons which I shall assign in Query No. 4.

The rail or zig-zag fence is still more objectionable from its unsightly appearance and great waste of land, and from encouraging the growth of every kind of noxious weed and bramble, the seeds and shoots of which are annually distributed all over the land to the great detriment of the farmers' interest.

Query No. 2.—I approve of Live or Quickset Fences, wherever they can be introduced by the farmer, without inordinate labour. The Hawthorn, which lends such a charm to English scenery, and proves so valuable and durable a fence, does not sustain its character or thrive well in Canada, nor is it to be depended upon as a durable fence, for the following reasons:—In the second or third year's growth after being planted, the plant is attacked by a small glutinous insect, (the one so well known for its ravages on the pear and cherry trees,) devouring the whole of the leaves, and, in some seasons, leaves nothing behind but the bare stem and branches, necessarily weakening the plant and checking its growth. It is next subject to the depredation of a smaller but more destructive insect than the one just noticed, which, I am told, is well known in the United States, and is called the American Spider. As it settles and multiplies on the stem and branches of the plant, it has exactly the appearance of hoar frost, and if allowed to remain undisturbed, will kill the plant down to the earth. I have tried all the known remedies for the cure of this evil; such as the application of plaster, lime, and fine road dust, after a shower of rain, or before the dew is off in the morning, but without avail. The sponge and water is the only effectual remedy, but time and labour preclude so costly an application upon a large scale. The plant also suffers severely some winters from the ravages of field mice in frequently cutting it down to the root. For these reasons I have abandoned the use of the English Quickset, as unsuitable for a permanent fence in this climate.

Query No. 3.—Those who are disposed to use the English Hawthorn, as a fence, must prepare the land, by trenching and manuring well. The plants should be set in a perfectly straight line, four inches apart. Some, I know, prefer a double line, setting one between each space of the front line, but I have a decided preference to the single line. It is difficult to weed between the double line of plants, and unless they are kept perfectly clean from the weeds and grass, they choke up and are prevented from throwing out shoots, and thickening at the bottom, and without a good thick bottom, a quickset hedge is of very little use. With attention to dubbing, the single line ultimately makes as firm and as good a resisting fence as the double one, with one half the labour. I have on my orchard a hedge raised from the single line

of young plants, (planted in the spring of 1845, which now stands six feet high, and is three feet thick, close to the ground, through which even a chicken cannot creep. This fence has been frequently gapped by field mice and the insects described in Query No. 2. From the want of previous experience, the height this hedge has been allowed to attain, is too great in proportion to the stamina of the plant, and the consequence is, it is unable to sustain the pressure of the heavy falls of snow during the winter, leaving it in a ragged condition in the spring, and much damaged in symmetrical appearance. I would strongly urge, therefore, a free use of the dubbing shears for the first years of its growth, and not allow the hedge to exceed three or four feet in height, until the plant has gained a sufficient girth to support it against any casual pressure.

Queries Nos. 4 and 5.—Are answered in the foregoing remarks.

Query No. 6.—I have had no experience in cultivating the "Osage Orange," but have heard that it is greatly prized in the West for the purpose of fences, but in England it has been tried and has failed.

Query No. 7.—I have never kept a strict account of the cost of planting a Quickset Hedge per rod. I have paid as high as $12 per 1,000 for the sets, and have purchased them as low as $1 per 1,000, and in both cases have planted the sets 4 inches apart. Independent of the labor, then, in preparing the land and planting the sets, the cost in either instance can be easily ascertained by calculating the number of plants to the rod of 16½ feet, and three plants to the foot. But any farmer who is desirous of raising live fences upon an extensive scale, I would advise to import the berries by the bushel after they have been pulped in England and sow them in drills in the spring, when on the spring following the sets will be above ground, and the spring after that they will be fit for transplanting into hedge rows, at the cost of 6d., or 1s. at most for 1,000 plants. But the great cost of raising hedge fences, consists in the length of time the plant takes to form a fence, and the careful watching and weeding it requires during that time, and in replacing any dead sets, and in erecting an external fence of some kind to keep off cattle and sheep until the plant has attained to a sufficient vigor to protect itself. And the farmer who is not prepared to incur the cost and trouble of performing all that faithfully, I would strongly advise not to meddle with planting hedges, as without the requirements I have mentioned, he could not succeed in raising a hedge fence of any value.

Query No. 8.—As regards the comparative cost of a Quickset Hedge, and a "Post-and-board" fence, I have not made it a consideration.

Query No. 9.—I have raised the native thorn from the seed, and have planted it alternately in hedge rows with the English quickset, but have now tried it exclusively in forming a hedge. The opportunity, however, which that mode afforded me of observing its fitness for fence purposes, leaves no doubt on my mind of its being incomparably superior to the English thorn in every respect, in this Province. It is entirely free from the ravages committed by insects on the English thorn. It is a hardier plant and has a larger and stronger stem for resisting cattle, and likely to endure, when once well-formed, for generations, and kept in order with no greater trouble than a zig-zag or any other fence, without the same decay. It is surprising that the native thorn has not been long since brought into general use as a fence, and any farmer who is desirous of fencing off his fields with quickset fences, cannot, in my opinion, do better than confine his selection to the native plant. He need not travel off his own farm to find the material. All that he has to do is to collect the ripe berries in the fall, put them in a heap in the earth during winter, that they may ferment and pulp. Take them up and sow them in drills in the spring and in two years from that date they will be fit for transplanting into hedge rows. The usual care must then be taken of them, and the only enemy to be dreaded is the field mouse. I have now given you all the information my confined experience permits, upon the distinct and relative qualities of the English and Canadian thorn, as applicable to hedge fences. When I was in England in the winter of 1854–5, I purchased 2,000 beech seedlings, at the cost of 4s. 6d. per thousand. These I brought out with me and planted them in close rows in the garden. When I have the land prepared, I purpose to plant them alternately, in hedge rows, with the native thorn, from which I anticipate a better and more permanent fence than from the thorn alone. Time will tell whether I am right.

When I was in England during the winter of 1854 and '55, I ordered one hundred iron hurdles to be made for me as an experiment, to see whether they could be introduced with advantage into this Province, to average 50 lbs. each, to be six feet long and to have connecting pins three inches long passing through a socket and fastened with a nut. All included at the price of 5s. sterling each, and made of the best malleable wrought iron.

I suppose that by a fair representation to Government of the intention of the importation, it would have permitted the entry of the hurdles at the lowest scale of duty 2½ per cent.; but it appears that in that supposition I was mistaken, for after two humble

applications I was denied the privilege, and compelled to pay the highest rate, 12½ per cent. This charge, together with the freight being levied by measurement instead of weight, as it ought to have been, made it rather too costly an experiment to be repeated. But still under these untoward circumstances, the hurdles laid down at Toronto did not stand me in more than 12s. 6d. each. The importation injured not the regular merchant, for they never import hurdles, nor could they do it to sell them to the farmer at such a price as would induce him to purchase, and leave at the same time a remunerative profit to the importer. It would have been doing no wrong to the mechanic as upon inquiry, I found I could not get them in the city under 25s. each, a price which at once precluded the use of them—and even at that price probably of inferior iron. And as it affected the revenue it would have been a positive advantage, as 2½ per cent. additional would have been contributed to its resources, while at a duty of 12½ per cent. not a fraction will be added. I am firmly of opinion that iron hurdles made of the very best material, averaging 50 lbs. each and complete in all respects, can be imported and laid down upon the wharf in Toronto at a cost not exceeding 8s. each, at a duty of 2½ per cent., and the freight paid by weight instead of measurement. At that price I should consider these hurdles well worth the attention of the farmer as a convenient and durable fence. And to that end I would strongly urge the "Agricultural Society," to memorial the Government to admit hurdles into the Province duty free.

Stanley Mills, Feb. 25.

My Dear Sir,—Yours dated 20th instant, is before me. Was I young, I might become a member of the Farmer's and Gardener's Club, could I think it would eventually prove beneficial to Canadians.

When I first joined a number of gentlemen, to commence the Agricultural Society when first it took its rise in Canada, I did it for the sole benefit of our youth. For a number of years I acted warmly and freely, &c.; but when I so frequently saw them giving way to drinking usages, and eulogising where I thought so unworthy, I was compelled to retire, to mind my own business at home. Nevertheless, I would hope and trust it is now better. I will freely contribute my little judgment to your enquiries, if it will add to your stock, and prove beneficial to Canadians, &c.

Answers to 1 and 2.—As to the kind of fences? Living ones if they can be obtained.

3.—I am not yet satisfied the English black and white thorn will grow well here; the mildew at certain seasons will destroy part of the top. I have not yet found an antidote. I use the English thorn.

4.—I want the ground perfectly clean. I then turn up a cap sod 12 in. wide from the face of the ditch, or front 6 in. deep, then I have got double surface of earth. I plant my 2 or 4 year old plants 12 in. from the front side, and back it well up with good soil.

5.—Is answered before.

6.—I think 4 year old plants well planted, and always well protected from harm, (cattle, &c.), and kept perfectly clean, &c., will be sufficient to be pronounced a good fence, (in good ground) seven years from planting.

7.—I have not tried the Osage Orange. I should wish to try them, as I feel confident something live of the kind, is and will be much needed in Canada. I shall not yet give up the English Thorn as a failure; they require due attention I am aware, and you cannot get tenants to do as you wish yet. I have not tried any experiment as yet against the mildew.

8.—Cost per rod, 50 plants and labour	£0	1	9
For cleaning and trimming per year 3 times	0	0	10
Should a ditch be required, the expense will be according to its size, one 3 ft. by 18 in.	0	1	5
	£0	4	0

Should the ground not always be kept perfectly clean, it might take five or perhaps ten times that amount of labour.

Cost of good cedar rails laid down is worth about £8, or even £10. Rails of other timbers farmers generally have, and perhaps they will not cost them more than about £2 10s. laid down; this depends on circumstances.

J. Sanderson.

Wm. McDougall, Esq.

Raglan, Feb. 27th, 1856.

My dear Sir,—I shall comply with your requisitions, as far as my humble abilities will permit.

You enquire first,—"What kind of a fence do I prefer?" I answer British Thorn Hedge.

Second,—"Do you approve of live fences in this country?" Answer—As I cannot see any material in our neighbourhood, such as stone, &c., rails being scarce and high priced, I see no alternative but live fences.

Third,—"What do you prefer as a hedge plant?" Answer—I am inclined to give a preference to *Thorn* either *English* or *Canadian*, and am of opinion that our *wild Plum* or our own *Beech*, or *both* mixed with *privet*, will make good, substantial, and permanent fences.

Fourthly,—"How do you plant and what is your mode of training?" Answer—I prefer planting on the level, to raising dike or ditch; because the *severe drought* of this country seems to say to *me*, plant on the level, and in a direct line, seven plants to a yard, and in training, *cut down* when planted to about *six inches*, and when one *year planted cut down again*, to about *eight, ten*, or *twelve inches* to cause them to thicken. The third year I would let them have a little more scope.

Fifthly,—"What are the accidents, &c.?" Have no experience, having only a small plot.

Sixthly,—"How many years before they make a good protection?" This is also a puzzler, yet I should say in about *seven* years *Thorns* or *Plums* may protect.

Seventhly,—"What is the cost per rod to make a hedge?" Answer—The present expense will differ according to the plenty or scarcity of the material. I suppose the Canadian Thorn are not plenty, nor are the white or Hawthorn, but if we could import *seed* and *grow* the *Hawthorn* in Canada, 35 or 40 plants to a rod, it could not be considered a high price, although growers should charge 25s. per 1000.

Eigthly,—"What is the cost of rails per 1000?" Answer—I have been making enquiry, as a great quantity of rails and other fence timber passes this way at present, and I find the farmers talk of from £5 to £7 10s. per thousand, laid down in this neighbourhood; and an extensive farmer tells me that he will not furnish rails under £10 per 1000.

Yours, respectfully,

EXPERIMENTER.

Port Hope, P. O., Hamilton Gardens, January 26, 1856.

Wm. McDougall, Esq.

Dear Sir,—A letter from you, addressed to R. Wade, Senr., was handed by him to me for reply, he supposing you had mistaken the name, he not having had any experience with the Osage Orange at all, and I have not had any myself as yet, only having made the attempt to raise them last spring, by sowing about a pound of seed. The plants came up and grew very thrifty during the summer; but this success will altogether depend upon what degree of hardihood they possess in winter. The simple killing down the top shoots a few inches, will not prevent them from making a good hedge plant, provided the old wood is hardy enough to stand the frost, that supplying the knife in pruning. Some years ago, I was making a straight fence on my farm, and having a small plantation of White Mulberry in the garden, I took them up and planted them as a hedge by the side of the fence; they are as tender as the Osage Orange, and kept killing down every winter the new wood formed during summer to some degree; but now they have got to be quite large and strong enough for a fence, if the plant was adapted for a hedge at all; but it is not, being altogether without thorns, and not stiff enough to resist the cattle pushing through them.

I am intending in the spring to put out my small plantation of the Osage Orange, and give them a trial. I have made several attempts at hedges already, but with the exception of the white Thorn, without much success. I have tried the Basket willow, and in some places where the ground was suitable, I have got quite a hedge from them. I have tried the Apple tree, but without much success; they grow too rambling and irregularly for the purpose. I notice in the neighbourhood some hedges of Buck Thorn, which seem quite hardy, and of rapid growth.

I notice in the January number of the *Albany Cultivator*, a communication signed H. Van Ostend, Rock City Mills, N. Y., speaking of the Apple tree for hedges—but he has only heard that they will do—but he states positively that the Osage Orange will not stand our northern winter sufficiently to be depended on. After another year's trial with mine, I will be better able to judge, and will let you know the result.

Yours, most respectfully,

JOHN WADE.

W. M'Dougall, Esq. YORK, February 25th, 1856.

Dear Sir,—You, the other day, asked me to give you a few hints on Osage Orange and other hedge plants as to their merits for fencing purposes. This I will do with pleasure as far as I

have proved the matter myself. The *Maclura Aurantiaca*, commonly called Osage Orange, is a native of North America and grows to the height of twenty feet.

1st. I have grown both the Osage and the English Thorn as hedge plants, in Hamilton. The Osage Orange thrives *well* on good ground. The English Thorn did not prove itself so thrifty as the Orange.

2nd. It requires protection from cattle during its early stages of growth, by slight temporary fences on each side, until able to stand in its own defence, but it requires no protection from the winter. I never used any myself, nor did I see any occasion for it.

3rd. TheOsage Orange is not subject to blight, nor to attacks of insects, that I ever have noticed to retard its growth. I have noticed some very few plants attacked by mice during the winter. The English Thorn was every summer attacked by the green fly, the black fly, and the blight. I have seen them so thickly covered that I could scarcely tell what color the plant was, and the mice attacks the stems severely during the winter.

4th. The Osage Orange I prefer far before the Thorn for fencing. The Osage takes far less time to make a fence than the English Thorn, and is not so infected with insects. The Thorn is quite liable to all these pests which naturally exhausts the young shoots and very frequently kills the whole plant.

5th. At $5 per thousand, I think, I could plant a hedge and cultivate it for the first year for about 3s. per rod.

6th. The second year's cultivation, allowing the hedge to be cleaned three times, 1s. 3d. per rod; the third year, 1s. 6d. per rod; the fourth year, 2s. So that a rod will cost 7s. 9d. at the end of four years, without the fencing. That I shall say nothing about the cost of, as I have but little experience in fencing.

7th. The Orange will make a good fence in five years, if in good soil. But the English Thorn will take eight or ten years, and if it is not kept clean at the bottom the mice will have killed the whole hedge by that time.

8th. There is another plant which I think is well worthy of cultivation for fencing purposes. The Honey Locust, properly called *Gleditsia Triacanthos*. This is a hardy, decidious ornamental tree, and grows about thirty feet high. It is a native of North America. I have seen a hedge of the plant about four years planted and it promised to become a very thick substantial hedge. It grows a foot or fifteen inches in a season, and the wood is very hard. It is raised from seed sown in March after being soaked in warm water, and it grows freely on common soil."

Yours respectfully, &c.,

GEORGE READING.

[*Honey Locust* grows spontaneously in Missouri and Western States, sometimes 60 ft. high, and 1 ft. diameter. Spines three or four inches long. Theygrow out of the trunk and limbs in clusters.—ED.]

Mr. McDougall exhibited specimens of the Native or Cockspur Thorn, the English Thorn, the Osage Orange, the Wild Plum, &c. He also exhibited to the Club, as connected with the subject, the plan of a new double-rolling, self-acting gate, which he thought superior in some points to any he had yet seen.—He did not claim originality in the adoption of the *rolling* principle, for a gate on that plan had been patented last year in the United States, but he claimed the improvement of the double gate, each rolling in an opposite direction. He concluded by stating, as the result of his inquiries and observation, that for the man who was engaged in the noble work of carving for himself a farm out of the wilderness, the common zig-zag rail fence was not only the cheapest and best, but the only good fence within his reach. For the older townships where timber is rapidly disappearing he thought the *banked* "post and rail," or "post and board" fence the cheapest and most durable form of dead fence adapted to the wants of the farmer. In the neighbourhood of cities, and even in some of the front townships, he believed, the time had come when serious efforts should be made to introduce *live* fences, and from all he had seen, heard or read, he had no doubt, the Native Thorn, intermixed with Wild Plum, Beech, or some other native plants, would make a good hedge, and require even less care than the Thorn hedges of England.

The President presented the thanks of the Club to Mr. McDougall for the very interesting remarks with which he had favoured them, and hoped they would be followed up by observations from other gentlemen. The subject was a most important one, and from the number of practical farmers and gardeners present, he was satisfied the facts brought out in such a meeting would be of great benefit to the country. Mr. Allen mentioned a case in his own experience, which showed the vigor of the native thorn. He had a piece of hedge of English thorn, which from want of care and other causes did not make a very

close fence. The thorn of this country had sprung up in parts of the hedge row, and grew so much more vigorously than the original plants that it took entire possesion of the fence. He thought this thorn well suited for the purpose of a hedge in this country. In reference to the "post and board fence" described by Mr. McDougall, he would like to ask him if he did not think even less wooden material would answer, by making the bank considerably higher?

Mr. McDougall said the objection to that would be, that a greater breadth of ground would be necessary to give such a slope to the embankment as to prevent washing and crumbling. The additional labor, also,—for the plough would not raise the bank sufficiently—would be an item of some importance.

Mr. R. L. Dennison had made a piece of fence on this plan some years ago, and he considered it the best fence he ever made. The embankment was 2ft. high, and about 3ft. base. He used only two boards. He thought the ditch no evil, but a benefit. Nothing ever got through this fence. He intended to make the same kind of fence next season, but he should use rails instead of boards. In answer to a member he said, the entire height, from the level of the ground, was about 3½ feet.

The President asked if any member could give information in regard to the locust, mentioned by one of Mr. McDougall's correspondents.

Mr. Mundie had tried the Honey Locust in the neighbourhood of Hamilton, but thought it would not endure the winter in this vicinity. West of Hamilton it flourishes, and makes a good hedge plant. The Osage Orange is also killed down in this part of the country, but above Hamilton it stands the climate very well. He considered the native thorn better than either, for hedge purposes.

Mr. Dennison knew a hedge of the Osage Orange which had had the best of care that was badly winter-killed. It might be seen at the residence of Judge Harrison, near this city.

Mr. Fleming thought it would not be prudent to recommend the Osage Orange for this vicinity.

Professor Croft had tried the honey locust. He had planted 100 locusts, and they stood the winter remarkably well.

Rev. Mr. Schreiber was of opinion from the observation he had made, that the Native Thorn was the best suited for fence purposes. He mentioned a hedge of English Thorn at Elmsley Villa, which though it was neglected, was yet so thick and strong that it would turn anything. He believed a good Thorn Hedge the cheapest fence in the end. The English Thorn took 8 or 10 years to make a fence. He had bought the plants in England for 7s. per 1000. He had used iron hurdles heavier than those mentioned by Mr. Beckett, but they would not resist unruly animals. They were very good for sheep. They cost 7s. 6d. each.

Mr. Grey had seen a hedge of the Osage Orange near Rochester. It did very well for a few years, but if the temperature falls 20° below zero it will kill them. He also saw a hedge of Buckthorn in the same neighbourhood which made an excellent fence. He had tried it with perfect success in Canada. No insects would touch it. He admitted it was not plentifully supplied with thorns, as other kinds, but nothing would get through it. He was decidedly opposed to the English Thorn in this country. It was a complete nursery for the *blight*, and would kill the orchards in the vicinity.

Rev. Mr. Schreiber recommended *nux vomica* to destroy field mice. A little placed around the fields would soon dispose of them. He thought nothing of that difficulty.

Mr. Fleming had the charge of a hedge of English thorn, and had not observed blight upon the old trees. No doubt great care was required to avoid it.

Rev. Mr. Schreiber asked if the same objection applied to the Canadian thorn?

Mr. Fleming said not. He had seen a good rough hedge of the native thorn. It was not so ornamental as the English thorn, but it would turn cattle. It would do so in about seven years. The great point was to transplant. By transplanting and cutting the tap-roots, it would thicken and make a good fence. Failures with the native thorn would be from want of knowledge.

Colonel Thompson thought it was about sixteen years since some English farmers brought out quicks from England, and attempted to grow hedges, with great confidence, in the township of Toronto; but he believed they never succeeded in enclosing a field. No portion of their hedges would turn small animals. Whether it was because they neglected them, or because the soil and climate was unsuitable, he could not say. Probably their other labours were so great that they could not take proper care of their fences.

Some years ago Dr. Beadle, of St. Catherines, thought he could make a good hedge of the locust, but he did not know how he had succeeded. He had observed, on the occasion of a recent visit to England, that they were adopting iron fences, and rooting up the hedges Those who adopted iron, saved land and got rid of vermin. He thought the native thorn might be used in this country. He believed the evil from frost might be obviated by the plan mentioned by Mr. McDougall. He had seen a fence on that plan, with a bank three feet high. Rails were used instead of boards. The waste of land was trifling—not more than six feet—and this made pasturage. The drains were of great advantage. He had counted the expense of our present fences, and knew it was enormous. He did not know where rails were to be got in a few years. He thought the remedy must be stone or thorn. It would take ten or eleven years to make thorn fences, if we begin now. What is to be done in the meantime?

Mr. Arnold had seen several hundred rods of hedge of native thorn, near Woodstock. It did well, and satisfied the owner. He thought if Mr. McDougall would write to Mr. Cottle, the gentleman he referred to, he could give him some valuable information on the subject.

Mr. R. Davis defended the English thorn. It had, like the flag that "braved the battle and the breeze" so many years, braved bulls and cows for centuries—and he regarded it with great respect. The specimen before the Club was not a fair representative. He had a small piece of native hedge on his farm, and he preferred it, because the plant was indigenous to the country.

Mr. Gordon had seen hedges of English Thorn, near Kingston that nothing could beat. He had been allowed to cut them down by the owner Mr. Harper, to thicken them, and they did well. They were an ornament to Kingston. No insect troubled them there.

Mr. Walton mentioned that he had heard a very flattering account of the success of Hemlock as a Hedge plant, near Philadelphia.

Mr. Gordon planted the Hemlock hedge that might now be seen at the Toronto Nurseries. —Mr. Leslie dug the young plants in the bush.—They made a beautiful fence. No cattle could get through them.

Col. Marks had seen the hedges referred to near Kingston. They were very good fences.—He had himself tried the Native Thorn. It did remarkably well. He thought Agricultural Societies should offer premiums for the best fences. He had seen picket fences with a block at the bottom of the posts, and fastened with wire at the top. They were straight and stood well.—It was these crooked fences that made the farm foul.

Rev. Mr. Schreiber thought premiums unnecessary. To grow a hedge was the simplest of all simple things. The subjet of fencing had been very ably introduced by Mr. McDougall; he had treated it with great clearness, and he thought the Club would do much to arouse public attention to the importance of the subject by publishing his remarks and the papers read, in pamphlet form. He would move a resolution to that effect.

Mr. Fleming had much pleasure in seconding the motion.

The Chairman suggested that the Club had not the necessary funds to publish at its own expense, but he had no doubt the *Agriculturist*, as well as other public journals, would gladly insert matter of this kind for public information. It was understood, Mr. McDougall, giving his assent, that his papers, and a brief report of the discussion, would appear in the *Agriculturist*.

A communication from Mr. Leslie on hedges was read. The President said, that so far as he could gather from the discussion, the native thorn was the best suited for hedges in this country. The Buckthorn seemed also well adapted for the purpose.

Some further conversation took place, when Mr. McDougall, seconded by Rev. Mr. Schreiber, moved the following resolution, which was unanimously adopted:—

Resolved,—That the Board of Agriculture be requested to undertake a series of experiments at the Experimental Farm near this city, for the purpose of testing the comparative merits of the various Hedge-plants recommended for fencing purposes in this country, and to publish the results as soon as they can be ascertained, for general information.

The next meeting takes place two weeks from the last, at which Mr. Mundie will read a paper on the importance of the Kitchen Garden.

ON HEDGES.—BY GEORGE LESSLIE, TORONTO.

Hedges, or live fences being the subject for discussion at the first meeting of this club, I beg leave to give you an idea how hedges are managed in the old country; being brought up in a country where there was little else used for fences, but hedges, and being practically engaged in planting, trimming, and managing some of the very finest hedges in Scotland.

Beech and Thorn mixed, were the only plants used for outside fences. Our mode of preparing the ground was as follows:—We dug a ditch 3 feet wide, and threw it all up on one side, and levelled thoroughly from one end of the line to the other, we then set our line, and planted our Quicks in the face of the bank, half slope; then took the shears or hedge bill and cut them all to one length out of the ground: a breadth of 2 feet inside was dug once a year—these hoed and kept clean

On large estates there is a scientific man kept, and goes by the name of hedger. He takes great pride in cutting and trimming his hedges, and tries with all his might to excel his neighbour. It requires a good deal of practice and taste to switch hedges neatly. In Canada, I have had but little to do with hedges; I am satisfied, however, that the time has arrived in the old settlements of this country, to look out for a plant that will make a permanent, substantial fence. The thorn has been tried in many parts of America, and abandoned. I have given it a fair trial myself, and gave it up, at least for the present, on account of its diseases and attacks of insects, yet I would recommend further trial of the thorn, as I believe that the disease has not been as bad as it was three or four years ago.

Osage Orange, the best hedge plant I know, I have tried in my nursery several times, and find that it is altogether too tender, for this part of Canada at least.

Rhamnus Catharticus, Buckthorn, so much recommended by the late Mr. Downing, is a strong, quick, growing plant, and is perfectly hardy; makes a very good close hedge when properly cut, and looks well; it has this advantage too,—insects will not touch it, and cattle will not brouse on it at any season of the year. Very easily grown on any kind of soil, on account of its fibrous roots. I have been selling plants of it for three or four years past, and in every instance it has given great satisfaction; a specimen hedge may be seen at the nursery, 4 feet high. I have reason to believe, and say with Mr. Downing, that the Buckthorn will be the great hedge plant of America.

Privet, makes a beautiful ornamental hedge, grows rapid in good soil, and almost an evergreen; good specimen of this may be seen in some of the gardens about Toronto.

Honey Locust, or Three Thorn Acacia, has long been recommended by the Americans for a farm hedge; but I have not seen a good specimen of it in all my travels. I have tried to make a hedge of it in the nursery, and find that it gets a good deal winter killed, and does not stand cutting; however I would advise a fair trial of it on dry, sandy land.

Japan Quince, makes a fine ornamental hedge for pleasure grounds; it is quite hardy, and when in flower, is magnificent in appearance.

Beech, is much used for hedges in the old country, but is too hard to transplant, and don't stand evenly. It is better mixed with thorn—makes good shelter on account of retaining its foliage all winter.

American Cedar, for an evergreen ornamental hedge, is very valuable, or for a screen to protect gardens and orchards, &c., there is no plant so suitable. It makes a superb hedge, and is of rapid growth—stands any amouut of cutting; altogether the best evergreen hedge plant I know. There is a specimen to be seen in the nursery.

Hemlock.—Of all the ornamental plants for an evergreen hedge, the hemlock has no rival; the only thing against it is, that it is too tedious to start evenly, and hard to transplant even out of the nursery bed. I may here remark, and take the credit to myself, that I was the first in America to try the Hemlock as a hedge plant. I had succeeded so well after a few years trimming, that Mr. Barry of Rochester took notice of it, and wrote to Mr. Downing and other horticultural writers in the States, about the hemlock as a hedge plant, and the beautiful specimen of it to be seen at the Toronto Nursery; the result is, that now thousands of yards are planted every year by gentlemen in the States, and nurserymen are growing it from seed for that purpose.

Red Cedar.—Treated as a hedge plant, makes a beautiful evergreen hedge, equal I think to the hemlock; but I have not had much experience with it as yet. On Long Island, near New York, I have seen splendid Red Cedar hedges. I intend to experiment on it this spring. I have some thousands of fine plants for sale.

There are several plants that might be used for low ornamental hedges, such as Barberry Tree, Honey-suckle, Euanimus, or Strawberry tree, Dwarf Golden Willow, American Holly, &c.

At some future meeting, I purpose to give a short chapter on planting, trimming, and general management of hedges.

Any one wishing to see a well trained hedge, should visit the Normal School grounds, and there you will see them trimmed and managed as they should be, under the superintendence of Mr. Mundie.

SHORTENING-IN PEACH TREES.

We have for many years favored the shortening of the peach tree. There appears to be everything for it, and nothing against it except the labor. The following reasons favor the operation:

1. Preserving the tree in a handsome, compact form.
2. Limiting the space occupied, so that more trees may be planted on an acre.
3. Increasing the thriftiness of the tree and its shoots, and, as a consequence, increasing the size and flavor of the fruit, like that on young trees.
4. Thinning the fruit by the most convenient and economical process.

It is not uncommon to see old neglected, and unpruned trees extending their long and nearly leafless branches to a distance of 10 feet on each side of the tree, the fruit being borne on the extreme ends of these poles, and being much less in quantity, smaller in size, and incomparably poorer in quality than crops on young and much smaller trees, or on those kept in proper form by pruning. Good cultivators find thinning necesary for attaining a high flavor in their fruit; crowded crops cannot become perfect. But to go over the tree and pick off the surplus peaches is a slow and laborious process, while, by pruning, it may be accomplished in about one-tenth of the time, and at the leisure season of winter.

We have, however, discarded the mode at first recommended, of cutting back each individual one year's shoot; this is too slow and minute. The substitute adopted is to cut off and *thin back* two or three years growth, or more, if the form of the tree requires it, always cutting where another limb branches off, so as not to leave a stump. Care is taken to avoid the error, sometimes committed, of cutting all back of an equal length, like shearing a hedge, which causes a thick outside growth, excluding the light from the interior of the tree. It will be understood, that in connection with the pruning here recommended, the trees should receive good cultivation at all times, or the success will be imperfect.

We have been induced to offer these hints at the present time, in consequence of having recently seen, in a work of some pretensions, an attempt to discourage the practice.—*Country Gentleman.*

M'CORMICK'S REAPER AND MOWER.

M'Cormick's Reaper—the original, or first successful Machine introduced into the United States—has lately been altered and improved and adapted to mowing as well as reaping. This Machine took the highest prize at both the London and Paris Exhibitions, though in *some* points Manny's Machine was considered superior to it, as remarked in our last number. We did not mean to say, as some of our readers seem to have understood, that Manny's Machine, as *a whole*, is superior to M'Cormick's, or that such was the opinion or award of the Paris jury. We have used Manny's; we have not used McCormick's. We consider the *adjustible* principle, which, we believe, is the *peculiar* feature of the former, an important improvement. The machines sold in this vicinity last year, were defective in construction, but it does not follow that the principle is defective.

We have been asked by two correspondents who wish to purchase, which is the best Combined Machine now before the public? This is a question we cannot undertake to answer; nor, indeed, do we feel able to offer an opinion on the point, whatever that opinion might be worth. So many alterations and improvements have been made from year to year, that it would require a person to be in *several places at once* to witness the operation of these *improved* machines, and to collect reliable data for an opinion. The question, in fact, is not susceptible of a direct, unqualified answer. You might as well ask, "which is the best plough?" without stating the soil or purpose for which it is intended. On the level prairies and large fields of the West a Reaping Machine is required, and will be pronounced the *best*, that could not be used on some of our small farms, amidst stumps, stones, and "cradle-knolls." A gentleman, in the neighborhood of the writer, who farms about 50 acres in a very superior style, purchased, last season, one of Seymour and Morgan's Machines, and when it was put together in his barn-yard, he could not get it out without taking down his fences. These being post and board, made it a question of some difficulty. The same difficulty would be encountered at every field, and he resolved to sell it, which he did at the first opportunity. A small machine like Manny's would have suited him much better.

We refer our readers to Mr. M'Cormick's advertisement on our outside sheet, and hope

his Machine may be introduced into Canada this season and prove itself worthy of its great reputation. As we have no interest in any particular Machine, and only wish to aid the farmer in his desire to obtain the best for his purpose, we should be very willing to spend a day in witnessing the operation of Mr. M'Cormick's in this vicinity, or even to take charge of it if he should choose to forward one for the purpose of examination and trial. It is but just to say, that in all these machines except, perhaps, that of Mr. Hussey, the essential points of the M'Cormick Reaper are copied, substantially.

As remarked in our last number, we do not accept the award of either the London or Paris juries as "final and conclusive," in favor of any implement or machine, which may be adapted to use on our soil. Opinions from such a source, however, are entitled to much respect, and we, therefore, subjoin the following, which is stated to be copied from the official awards:—

"In agriculture, the sole Grand Medal of Honor was awarded to C. H. M'Cormick, of Chicago, Illinois, United States of America, inventor of the Reaping Machine, that has operated the best at every trial, and is the type after which all other Reapers have been made, with different modifications, that have not changed the principle of the discovery." The following also appears in the *Scientific American* of Jan. 12th, 1856: '*La Presse*, the most extensively circulated newspaper in France, has devoted no less than four columns to a historical sketch and minute description of M'Cormick's Reaping machine, with an account of the extraordinary results obtained in all the recent trials before the international jury; and it bestows great praise on American inventions generally.'"

RECEIPES AND GOOD THINGS.

A "farmer's wife" sent the following list of good things to the *R. New Yorker*, from which journal we copy them:—

Crackers.—Three quarts flour, 1 cup of butter, 1 pint water, 1 tablespoon salt. Pound until the dough snaps.

Another.—One pint of cold water, 1 teacup of lard, a little salt, 2 teaspoons of soda (or saleratus)—dissolved in a little vinegar; work in flour with your hands until quite hard; bake in a quick oven.

Doughnuts.—Take 7 coffee cups of bread dough when light, mix into one and a half cups of melted lard, with one of sugar, and a teaspoonful of saleratus; when it has again become light, roll it out, cut into what shape you please, and boil in hot lard. To succeed well, the dough should be mixed with milk.

A very nice Fruit Cake.—One pound sugar, half a pound of butter, 4 eggs, 1 teacup of sweet milk, 3½ cups of flour, 1 teaspoon of saleratus, nutmeg, cinnamon and cloves—as many raisins as you can afford.

Cup Cake.—Five cups of sifted flour, 2½ cups of white sugar, 6 eggs, 1 cup of butter, 1 of sour cream, 1 teaspoon of soda, nutmeg. If sweet milk is used instead of sour cream, put in two teaspoons of cream of tartar.

Hard Gingerbread.—Two cups of molasses, 1 of buttermilk, 8 tablespoons of melted lard or butter, 4 teaspoons of saleratus, 6 of ginger, a little salt, flour enough to roll (not very hard.)

Cinnamon Cakes.—One cup of sugar, 1 of molasses, 1 of butter, 1 tablespoon of ginger, 1 of cinnamon, 1 of saleratus, dissolved in half a cup water—flour enough to roll; to be rolled very thin and cut in round cakes.

Cookies.—Two cups of butter, 2½ of sugar, 4 eggs, half a teaspoonful of saleratus, caraway seed, flour enough to roll—made very thin.

Cream Cookies.—Two eggs, 2 cups of sugar, half a cup of butter, half a cup of sour cream, 1 teaspoon of saleratus, caraway seed, 2 teaspoon cream of tartar—flour enough to roll.

These receipes I have used for some time, and find none better. If persons who try them do not succeed, they must blame themselves alone, if they have good material.

PROVINCIAL EXHIBITION AT KINGSTON.

Our readers are probably aware that the next Show of the Provincial Association will take place at Kingston, C.W. The citizens of that city held a meeting a few weeks since, to take steps to raise funds and otherwise aid the Board of Agriculture in making preparations for the Show. The Mayor presided, and there seems to have been a determination on the part of those present to make the Show of 1856 creditable to the locality and to the Province. A local journal informs us that—

A series of Resolutions were passed, without a single dissentient remark, pledging the Citizens to aid the Board in carrying out the objects in the best possible manner, and we hold this unanimity to be a good augury for the success of the Exhibition. Addresses were delivered by Colonel Marks, the Baron de Longueil, John R. Forsyth, Esq., Mr. Sheriff Corbett, Mr. Kirkpatrick, Q.C., Mr. Alexander Campbell, Colonel Cameron, and other gentlemen, and were well received by the meeting. Dr. Litchfield read a letter from Mr. Hopkirk, Collector of Customs, assuring the meeting that the department would afford every facility to the admission of Foreign Goods and Produce for Exhibition, and that no duties would be charged, except in the event of sale.

The N. Y. State Exhibition, for 1856, takes place at Watertown, or some other locality in the immediate neighbourhood of Kingston, and if the Exhibitions be held simultaneously, or if one Exhibition immediately follows the other, it would enhance the interests of both. The free admission of Produce for Exhibition in Canada should be known to the United States farmers and manufacturers, and we pray our exchanges to pass the declaration of the Canadian Collector of Customs round and to procure us Reciprocity.

ARTIFICIAL FISH-BREEDING.

The New York State Agricultural Society offers the following:

A premium of $100 (Gold Medal or Money) for an approved work of about 100 pages, duodecimo Long Primer, for the Transactions of the Society, on the Edible Fishes of the State, which are susceptible of *domestication and cultivation*, comprehending,

1st. The fishes (including shell) of our salt and tide waters.

2nd. The migratory fishes, inhabiting both salt and fresh water.

3rd. The fishes inhabiting our great lakes and the connecting straits and outlets.

4th. The fishes of the smaller fresh water streams, lakes and ponds of the interior.

5th. The valuable varieties, not native to our waters, which may be successfully introduced and cultivated, either for edible or ornamental purposes.

6th. The artificial production of fish, in rivers, lakes and streams, as practiced in France and Great Britain, and in this country.

Together with the natural habits, food, haunts and feeding grounds; the method of taking them, and the means of their cultivation, increase and preservation; their value as an article of food, or for the purpose of enriching our lands to the farmer; with such other matter as may appertain, generally, to these several subjects (copy right of the work to be for the benefit of the author, after publication in Transactions.)

Water Melon Molasses.—An article has been going the rounds of the papers about the practicability of making molasses from water melons. We felt incredulous on the subject, but have recently been presented with a bottle of it by our friend, Philip A. Mason, of Woodbury, New Jersey, who is well known in this market as a successful grower of the mountain sweet water melon. It was really a nice article, clear, sweet, and of a very pleasant flavor. He informed us the only process was to boil down the pulp to about one-half. The boiling was continued for several hours. Whether it will pay to manufacture molasses in this way is another question, and a matter of very great doubt. —*Pennsylvania Farmer.*

BRINE A POISON—FAT HOGS—AN OLD HORSE.

To the Editor of the Agriculturist.

Sir,—This day I received three numbers, January, February and March, of the *Agriculturist.* I opened the March No., and the first sentence I saw was, "Brine a Poison," on page 74. I thought all the world knew that; if not, it is time they did. Pork brine, especially with salt-petre in it, is death to all that eat it. A tenant on a farm of mine killed a pen-full of fat hogs, nearly ready for the butcher, by giving them some ground-feed with pork brine. I have known other similar cases. As to beef brine, only one case occurs to my mind, and that turned out favourably. A man emptied some beef brine into the road, an old horse came and eat up both brine and dirt, and as good luck would have it, he went off and died, which saved his wintering. Whether he got too much dirt for easy digestion, or whether the brine killed him, I will leave to scientific men to decide.

You stated that, "as brine is sometimes used a second time for pickling and other purposes, these facts should be remembered." Please to recollect that *old brine* will not *kill* pork; it is made to save it, only don't feed it to animals. It will destroy life, but save the bacon.

I do not know the age of my pork brine,—I will say at least 10, perhaps 15 years old. I hope to live to see it 40. I never scald brine; it makes meat dry, tough and tasteless. In packing pork, the head and all bloody pieces, should be put into weak brine a day or two to draw out the blood; then salt down. Always have salt left in the bottom of the barrel, and the brine will keep good for perpetual use—no fear of poison.

When I have time to read the other numbers, I will write again.—I subscribe myself a Farmer, who has grown gray by long experience,

H. C. P.

Back Woods, Canada West, 12 March, 1856.

Remarks.—Our correspondent, who is an intelligent and successful farmer west of Hamilton, has our thanks for his comments. We shall be glad to receive observations in the same style upon other articles in our journal, which may seem to warrant them. It is by comparing facts, and combining the results of a diversified experience, that we arrive at truth in agricultural science. We do not see through the philosophy of our correspondent's "old brine." In the article to which H. C. P. refers, and which by the way is merely a statement of the results of certain experiments made by a distinguished French medico, the suggestion is thrown out, without any expression of opinion as to the fact, that if "old brine" be a *poison*, it should be remembered when using it for pickle. We are glad to learn from H. C. P., that it will not kill the *dead.* He admits it will kill "animals," and as men, women and children are *animals*, and, in eating pork, might perchance eat some of this "old brine," it would seem to follow as a logical consequence, that men, women and children are in danger of being poisoned, as well as living "fat hogs" and "old horses." We, however, in the mean time submit to the correction of our correspondent, and trust other friends will add their experience. We are still a little obfuscated.

ROOT-GRAFTED TREES.

It would appear from discussions reported recently in American Journals that the common method of root-grafting, which we believe is practised by Canadian as well as American nurserymen, is not free from grave objections. Root-grafting has not been practised on a large scale, if we are correctly informed, more than 15 or 20 years, and, therefore, the *durability* of such trees, as compared with seedlings, or those grafted in other modes, can hardly yet have been determined.

The question is a very important one, and we should be glad to hear the opinions of some of our readers who have had experience in the matter. We know a great many cases in which root-grafted trees have certainly not done well, but we had supposed the failure was owing to *bad treatment.*

The remarks of the gentlemen who took part in the discussion reported below, suggest another cause which may help to explain these unfavorable results. At a meeting of Farmers in Augusta (the Capital of Maine) Mr. Goodale said:

"One question of importance to us is root-grafting, such as cultivating apple seedlings a year or two in very rich soil, and thus getting a long tape root. This root is cut into pieces, and scions put into them, then set in the ground. It amounts to raising trees from cuttings,—the root merely keeping the scion moist and until it roots. If such trees grown in this way, are really of value, he would like to know it; if not, we ought certainly to know it. Hundreds and thousands of such trees are brought into this State from the West. If they are found to be good by anybody who has tried them, he would like to know it."

Mr. Fairbanks has seen and examined such trees. In a bundle of twenty-five trees he found there were not roots enough on the whole for one tree. He would not set them out to have them. A good root is absolutely necessary to make a good tree.

Mr. Crane said 18,000 of such trees were landed last spring in Bangor. An agent had canvassed the whole country round, and very many were "gulled." The people have been dissatisfied, and as many as seven lawsuits have grown up from the swindling operation. He knew of a man who had bought 300 of these last spring, and set them out carefully, and they are all dead now.

Col. Simmons had tried the experiment of raising trees on grafted pieces of roots. They would grow well a little while, but soon died. He would not have them on his farm, if he could get good trees for one dollar apiece.

Mr. Dana had raised trees from layers. Some twenty-five years ago, when he first commenced farming, he bought 100 trees raised in that way; six or seven are now alive. A few of them had fruited a little. The largest of them is not more than six inches in diameter. He knows an orchard from the same kind of layers. The largest one of the trees is not over eight inches in diameter, and they are now dying. Trees raised from seed in the same orchard are now thrifty, and larger than the others."

Keeping Apples.—A close chamber is a better place to keep apples than a cellar Apples bear freezing once without injury, if they are not handled till thawed. Linen cloth laid on or around apples prevents injury from freezing. Apples have been found in good order in the spring, that have lain in barrels under the trees all winter. Roxbury Russets are considered the longest keepers.—*N. E. Farmer.*

Gathering fruit from the apple and currant trees, when green, or before they are fully ripe, makes them more prolific the following year.—*N. E. Farmer.*

Trees designed for clayey soils do best when transplanted in the spring.

GARDEN AND FIRE ENGINE.

The figure represents a useful engine that every farmer whose buildings are extensive and exposed to danger, and who cultivates a garden, should supply himself with. It is what is called a combination pump, mounted as seen in the cut. It may be used for extinguishing fires, showering fruit trees with medicated washes, washing windows, &c. &c. The cost is about $30 for a medium size.

NOTES ON ASHES.

To the Editor of the Agriculturist.

Sir,—Ashes are the earthy and saline matters contained in any substance subjected to combustion. They vary in their properties according to the material used in producing; consequently, they vary in efficacy.

	Soluble Salts.	Earthy Phosphates.	Carbonates.	Silica.	Oxides.	Loss.
100 lbs. of oak ashes give.....	38 lbs.	4 lbs.	32 lbs.	2 lbs.	2 lbs.	22 lbs.
From 100 lbs. straw of wheat we get.....	22	6	1	61	1	9

The soluble salts are potash. The phosphates are lime and magnesia. The carbonates are lime and magnesia. These are essential vegetable ingredients. It is evident, therefore, that our manure heaps are benefited by the addition of ashes.

They are an excellent means for ameliorating the soil, and are especially useful in strong clay and moist land. They will remove moss and poor grass. They do not, however, produce their greatest effect unless they find vegetable matter or manure wherewith to combine. On poor land they are nearly useless.

A free use of ashes has often doubled a crop of grass.

Fresh ashes when used should be mixed with pulverized or slacked lime, and then slightly moistened.

As a top dressing for meadows sow ashes in April or May. If grass seed is sown at the same time and the meadow harrowed, the benefit will be great.

As food for Corn with gypsum, they are very efficacious.

Fresh ashes ought, however, to be used sparingly, say not over ten bushels per acre, as they are caustic, and will contribute to exhaust the soil by too great action.

Leached Ashes.—Notwithstanding the care of those who make potash, the refuse ashes always contain a portion of this valuable salt generally combined with silica. They contain also lime, magnesia and phosphoric acid.

These ashes may be applied in proportion of two tons to the acre, and their effects will continue for many (say 10) years.

The following mixture may be considered as equivalent to one ton of fresh wood ashes

Potash	60 lbs.
Carbonate of Soda	60 "
Sulphate of Soda	20 "
Common Salt	20 "
	160 lbs.

I have applied 30 to 40 bushels of ashes to the acre upon ground which before did not fully develop the wheat plant. The product was much improved and gave a full crop. I would advise three to four waggon loads of ashes per acre as we obtain them from the asheries.

Toronto, 15th March, 1856. AGRICOLA.

FENCES AND SNOW DRIFTS.

Although snow-drifts are disposed of for this year, yet the season for fence-making is at hand, and we therefore insert the following hints for the benefit of those whom it may concern :—

To the Editor of the Agriculturist.

Seymour, Feb. 26, 1856.

My dear Sir,—During this drifting weather, I often hear the question asked, " what means can be adopted to prevent the filling of roads with snow ?" therefore, I suppose it is not generally known that erecting a *close* fence, one that will prevent the wind passing through it, parallel with the road, about 5 feet high and thirty feet from the centre of the road, will obviate it. Any person who takes the trouble of enquiring into the business will readily perceive that directly the drift passes over a close fence it falls to the ground on the lee side, and, instead of creeping on as in the case of an open fence, stops suddenly, and thus forms a perpendicular bank; the drift must therefore continue an indefinite period before it fills the road.

Persons having the care of Railroads and common highways, would do well to work on this plan. From my own experience it has the desired effect. You are welcome to publish the above, if you think the hint worthy of notice.

I remain, my dear sir, your's truly,

H. Rowed.

Catching Elephants.—The manner of catching them is simple enough, and with the stealthy, cat-like peculiarities of the Moormen of Ceylon, is attended with little danger. When a herd has been discovered, in which there are young ones, they watch them till mid-day, when they are either drowsy or asleep, and then creeping up behind with ropes, fasten their hind legs together; they then set up loud yells to frighten away the old ones. The course of education afterward pursued is very simple, but speedy and effective; they are left tied, with no water or food, for three or four days, when these requisites are administered as sparingly as possible; in a week they become so tractable as to kneel down at the word of command.

The British Quarterly has the following, to show the value of mechanical skill and labor on raw material. A bar of iron valued at $6, worked into horse shoes, is worth $10,50; needless, $355; penknife blades, $3,285; shirt buttons, $29,480; balance springs of watches, $250,000. Thirty-one pounds of iron have been made into wire upwards of one hundred and eleven miles in length, and so fine was the fabric, that a part of it was converted, in lieu of horse hair, into a barrister's wig.

Facts worth Knowing.—The whole number of languages spoken in the world amounts to 2,523, viz., 587 in Europe, 395 in Asia, 276 in Africa, and 1,264 in America. The inhabitants of the globe profess more than 1,000 different religions. The number of men is about equal to the number of women. The average of human life is about 33 years. One-quarter die previous to the age of seven years, one-half before reaching 17. Of every 1,000 persons, one reaches 100 years of life; of every 100 only six reach the age of 65, and not more than one in 500 lives to 80 years of age. There are on the earth 1,000,000, 000 inhabitants. Of these, 33,333,333 die every year, 3,800 every hour, and 60 every minute, or one every second. These lossees are about balanced by an equal number of births. The married are longer lived than the single; and above all, those who observe a sober, industrious conduct. Tall men live longer than short ones. Women have more chances of life in their favour previous to being fifty years age than men have, but fewer afterwards. Those born in spring are generally more robust than others. Births and deaths are more frequent by night than by day.

A Nice Dish for Breakfast.—Take one egg and beat it up, add a teaspoonful of salt, pour into about two-thirds of a pint of water, then slice some bread, dip it in, and fry in a little butter. Serve warm, and you will find it an excellent dish.

Crackers.—One tea-cup of lard; one teaspoonful of saleratus; one of burnt alum; mix hard. Knead and roll into small crackers without a cutter. Bake in a quick oven.—P., *Somerset, N. Y.*

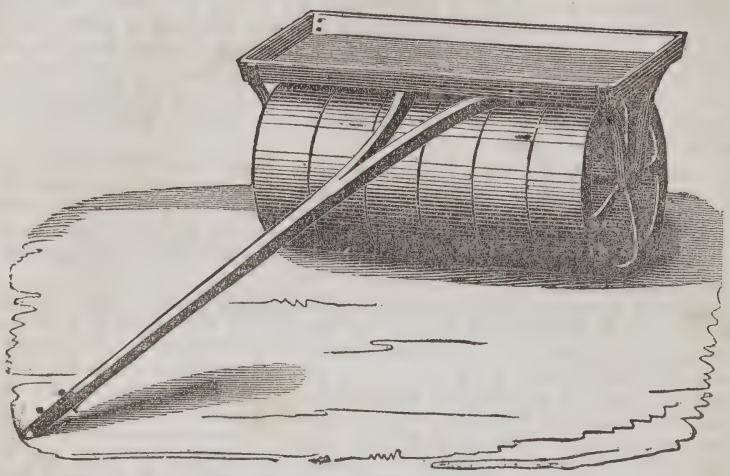
Fruit in Cans—Pie-Plant, &c.—Putting up fruits, &c., in sealed cans is not always successful, as many know from experience. Green corn has often been tried, and generally without success. The *Ohio Cultivator* says, "Others have a more sad experience in canning rhubarb and pie-plant, which contains so much oxali acid, that on being used from the cans has nearly been the death of whole families. Keeping in this way seems to give more virulence to its poisonous qualities, which are comparatively harmless when the plant is used fresh from the garden." Sealed glass bottles are much better than metallic cans for this purpose.

Fruit Trees in Illinois.—The *Prarie Farmer* of Feb. 21st, says:—"There is no longer any doubt in regard to the partial or the entire destruction of the current year's growth of many young orchard trees in this part of northern Illinois. The apple alone seems to have escaped. The *pear*, where the growth was good, *shows* the effects of the severe weather even more than the peach, in our grounds."

Currants bear in three years from cuttings.

For Kicking Cows.—Take a short strap and fasten the ends together. Next prepare a pin of some soft wood, about 6 or 8 inchss long, 1½ inches in diameter. Take the cow by the off fore-leg, and double it at the knee joint close; pass the strap or loop over the knee, pressing it back until you can insert the pin between that and the knee joint, and she cannot kick.—J. B. T.

The following method for remedying smoky chimneys is recommended in the *London Critic:* "A revolving fan is placed vertically in the opening of a small, compact, moving cowl, fixed on the chimney-top. The gentlest current of air sets this fan in motion, creating an upward draught in the chimney, preventing the return of smoke, gaseous vapours, etc., into the apartment, and also the falling of soot and rain.



THE ROLLER.

These are now made of Iron, in sections one foot long and embracing any number from three to six, as may be desired. The sections are placed on a wrought iron arbor or axle-tree, on which they each revolve independently, so that in turning the roller at the ends of the field the ground is not left uneven. If not more than four sections are required, thills or shafts may be substituted for the tongue, and the implement may be easily drawn by one horse; as both tongue and shafts may be had, and one or two horses used, as occasion may require. The box is attached to receive stones, &c., picked up on the field rolled, and for giving extra weight to the roller when the same may be needed. For distant transportation, the iron sections, and standards to which the woodwork is attached, are furnished to order, either with or without wrought iron arbor, by weight and the wood parts can be furnished and attached by any wheelwright or carpenter in the district where the roller may go.

PRUNING APPLE TREES.

Now, don't, kind reader turn up your nose, because your theory differs from mine. What does the doctor do when he amputates a leg? O, he *dresses* it carefully as possible. Very well. So do I dress a limb of a tree after it is sawed off, and common sense requires it as much in one case as in the other. But I find it pleasant, as well as convenient, on a leisure day to go out and trim off the shoots and dead branches, and when a warm day comes in spring, I go all over the orchard with a ball of grafting wax, or some shellac dissolved in alcohol, and cover every wound. If you are not willing to do this, then don't prune till the leaves are set, or, which is, perhaps better, till September or October, which with me is a very busy season. I see where I have practised pruning and dressing in years past, as I have described, that the bark is lively, and the healing process is going on all around the wound, a point of the greatest importance. My theory on this subject, is to take care and dress your wounds, make them when you will.—*Cor. N. E. Farmer.*

ADAPTATION OF WHEELS TO THE PLOUGH.

A farmer in the neighbourhood of Bridge of Allan (Scotland), invented, about a couple of years ago, a piece of ingenious yet simple mechanism, whereby wheels may be attached to the common plough, which may be wrought without any exertion on the part of the ploughman. One of the wheels goes in the furrow and the other on the higher or level ground, and the plough can by a simple contrivance by means of screws and a directing rod, at once be regulated at pleasure to any depth or breadth of furrow while the horses and plough are in full working motion. It is thus adapted to uneven or rocky surfaces, as well as to land free from stones.

At a recent trial of this wheel plough, near Stirling, its merits were universally admitted by a large concourse of farmers; the work it made being superior to that of the ordinary plough, and it is very easy to manage. The wheels, which may readily be attached to the common plough in the course of half an hour, weigh about 1 cwt. and cost from £2 to £2 10s.

Potted Cheese.—An "old dairy woman" sends the following receipe to one of our exchange journals, for the benefit of those who keep but a cow or two:—

Prepare your curd as you would for the press, then put it in a bag secure from flies, and hang it in an open room until thoroughly drained, then chop fine and pack in a brown earthen crock, (stone is not as good,) put in a layer of cheese, a very little saltpetre, and sprinkle in a little good brandy, say ½ pint to 20 lbs. When your crock is full press down with the hand; cover your crock with two or three thicknesses of writing paper, pasted to the crock to secure from flies, over the paper tie a cloth to prevent bugs from gnawing through, and set in a dry place not too warm. In one month it will be good, but in six it will be "cheese that is cheese."

Long Sermons.—There is nothing which a preacher should be more guarded against than length. "Nothing," says Lamont, "can justify a long sermon. If it be a good one, it need not be long; and if it be a bad one, it ought not be too long." Luther, in the enumeration of nine qualities of a good preacher, gives as the sixth, "That he should know when to stop." Boyle has an essay on patience under long preaching. This was never more wanted since the Commonwealth than now, in our own day; especially among our young divines and academics, who seem to think that, their performance can never be too much attended to. I never err in this way myself, but my conviction always laments it; and for many years after I began preaching, I *never* offended in this way. I never exceeded three quarters of an hour at *most*. I saw one excellency was within my reach—it was brevity; and I determined to obtain it.—*Rev. W. Jay.*

John Flavel on Divine Providence.—Labour to get as full and thorough recognitions of the providence of God about you, from first to last, as you are able. Fill your hearts with the thoughts of him and his ways. If a single act of Providence be so ravishing and transporting, what would many such be, if they were presented together in the view of the soul? If one star be so beautiful to behold, what is a constellation? Let your reflection, therefore, upon the acts and workings of Providence for you be full, extensively and intensively. Search backward into all the performances of Providence throughout your lives, for so did Asaph: "I will remember the works of the Lord: surely I will remember thy wonders of old; I will meditate also of all thy work, and talk of thy doings." He laboured to recover and revive the ancient providences of God's mercies many years past, and such a fresh sweetness out of them by new reviews of them. Ah! Sirs, let me tell you, there is not such a pleasant history for you to read in all the world, as the history of your own lives, if you would but sit down and record to yourselves, from the beginning hitherto, what God hath been to you, and done for you; what signal manifestations and outbreakings of his mercy, faithfulness, and love, there have been in all the conditions you have passed through; if your hearts do not melt before you have gone half through that history, they are hard hearts indeed. "My Father, the guide of my youth."

MEETING OF THE BOARD OF AGRICULTURE.

A Meeting of the Board of Agriculture of Upper Canada, was held in this city, on the 27th, 28th, and 29th February, pursuant to notice from the Secretary. The following is a brief summary of the proceedings:—

Wednesday, February 27.

Present:—The President, (E. W. Thomson, Esq.,) Hon. A. Fergusson, Messrs. John Harland, R. L. Denison, David Christie, M.P.P., A. A. Burnham, J. B. Marks, Sheriff Ruttan, and Professor Buckland.

The minutes of last meeting were read and confirmed.

COMMUNICATIONS.

A communication was received from Mr. William Evans, Secretary of the Lower Canada Board of Agriculture, stating that the next Annual Provincial Agricultural Exhibition for that section of the Province had been appointed to be held on the 17th, 18th, and 19th of September next.

A communication was also received from Mr. B. P. Johnson, Secretary of the New York State Agricultural Society, stating that the next Annual Exhibition for that State would be held at Watertown, on September 30th, and October 1st, 2nd, and 3rd next.

Two communications were received from Mr. Charnock, of Hamilton, representing the advantages of obtaining from the Legislature a General Drainage Act, and requesting the co-operation of the Board to secure that object.

Several other communications on various subjects were likewise received.

On motion it was resolved, That the next Exhibition of the Agricultural Association of Upper Canada, should be held at Kingston, on the 23rd, 24th, 25th, and 26th September next, being during the week between the Exhibition for Lower Canada, and that for the State of New York.

Mr. Marks laid upon the table a list of names to compose the Local Committee at Kingston, as follows:—A. S. Gildersleeve, Esq., Mayor of Kingston, D. Roblin, Warden of the United Counties of Frontenac, Lennox, and Addington, the President of the County of Lennox Agricultural Society, do., County of Frontenac, do., County of Addington, Colonel Cameron, Thomas Briggs, Judge MacKenzie, James O'Reilly, Dr. Litchfield, Dr. Barker, John Flanaghan, Sheriff Dickson, Sheriff Corbett, M. W. Strange.

On motion it was resolved, That this list be adopted by the Board.

Certain newspaper reports in reference to the proposed erection of edifices of a permanent character at Kingston, and which would be available for the exhibition, were read, and some conversation took place thereupon; and after some detail business, the Board adjourned till next day.

Thursday, February 28.

Board met at 10 A.M.

Same members present as on preceding day, except Mr. Harland, whom sudden business had called away.

The Prize List for the next Exhibition was discussed, and a Committee appointed to revise it thoroughly, and report to the next meeting of the Board.

Professor Buckland presented a report of a tour made by him, in the autumn of the past year, to the Western part of the Province, during which he had delivered several agricultural lectures, and had found several agricultural improvements in that quarter of the Province advancing rapidly. The report refers more particularly to the Annual Exhibitions of the Counties of Kent, Essex, and Lambton, which indicated steady progress.

The subject of localities where the Provincial Exhibitions may be held, obtaining grounds and erecting buildings for exhibition purposes, being again discussed, it was resolved that, whereas the several localities at which the Annual Exhibitions of the Agricultural Association may be held in future, may, by their permanent structures, contribute to the accommodation of such exhibitions—*Resolved*—That the Association will contribute towards such expenses in proportion to the facilities afforded.

Mr. Charnock's communications were then considered, and it was resolved, That the Board, though fully concurring in the importance of the subject, was of opinion that in the present state of the country, drainage improvements would have to be carried out by private enterprise.

A communication from Mr. Moyle of Brantford, in reference to the promotion of immi-

gration from Europe of a desirable class of persons for farm servants and settlers was read, together with a letter to that gentleman from the Bureau of Agriculture, and after discussion, the Board feeling that the funds of the Association would be wholly inadequate to undertake any such immigration scheme as proposed by Mr. Moyle, the Secretary was instructed to convey to Mr. Moyle, the thanks of the Board of Agriculture for his communication on the subject of immigration, and to express the hope that he may continue to urge the matter on the attention of the Minister of Agriculture.

The subject of the publication of the Transactions of the Board was then considered, and it was resolved, That an application be made to the Minister of Agriculture for a grant in aid of that undertaking.

On motion of Mr. Denison it was resolved, That the future entrance at the gates during the exhibitions, should be 1s. 3d. instead of 7½d. as formerly; children under 14 to be admitted at half-price.

The subject of the encouragement of the importation of stock being discussed, it was resolved, That the Prizes for stock imported since last exhibition should be the same as last year.

Mr. Denison gave notice, that at the next meeting of the Board, he would move that in future no refreshment tickets be issued at the exhibition, and that the sum of £1 should be paid to each of the judges on the conclusion of his duties.

The Counties, eligible to compete for prizes for Agricultural Reports this year, were then balloted for, according to a previous regulation, and the selection fell upon the Counties of Addington, Haldimand, and Huron.

It was resolved, That an efficient instrument for testing the draft of Ploughs at the exhibitions be procured for the use of the Association.

The Board adjourned till next day.

Friday, February 29th.

Board met at 10 A.M. Same members present as on previous day.

In reference to certain produce grown upon the Experimental Farm from imported seeds, it was resolved, That the barley so grown, be placed in the hands of the Seedsman of the Association, Mr. Fleming, to be disposed of by him at 5s. per bushel, in limited quantities.

The subject of the Chinese potatoe (Dioscorea batatas) being discussed, the Secretary was authorised to order a quantity of the seed from New York, to be cultivated upon the Experimental Farm.

On motion of Mr. Marks, it was resolved to offer a premium of £15, at the Kingston Exhibition, for a Portable Steam Machine for breaking stones for roads.

In reference to the choosing of Judges for the Exhibition, it was resolved, That each of the County Societies be requested to furnish the names of six competent Judges, on or before the 1st July; and that the Board take the responsibility of selecting from those names, the judges required.

After some further business the Board adjourned.

THE KITCHEN GARDEN.

We regret that the space at our disposal prevents us from inserting the very interesting and instructive paper read before the A. & H. Central Club by Mr. Mundie on the importance and management of the Kitchen Garden. It would have been peculiarly appropriate in the present number, and may not be too late in the next, if we should have a backward Spring. The most important result of the discussion, however, was the preparation of a list of vegetables and varieties suitable for cultivation in this climate, in the farmer's garden.

The numerous varieties offered for sale by gardeners and seedsmen, sometimes perplex the purchaser, and it often happens that the best are not chosen. The committee appointed to make the following list was composed of gentlemen well qualified for the

purpose. Their names are Professors Croft and Buckland, and Messrs. Fleming, Mundie, Leslie and Gordon, practical gardeners :—

REPORT.

The Committee appointed at the meeting of the Club, to make out a list of the most useful and best kinds of vegetable seeds, roots, and small fruits, (with their proper names), to be appended to Mr. Mundie's paper, have recommended the following varieties as being the most suitable for the purpose. They are all of the best kinds that are now in cultivation for general crops (taking their qualities and productiveness into account).

They are placed in the order of their earliness, and also of their merit, and can be obtained from any regular seedsman or nurseryman by the names given in this list.

VEGETABLES.

Name	*Sort*
Asparagas—	Giant
Kidney Bean—	Yellow Six Weeks.
"	Red Specked.
"	Scarlet Runners.
Beet Root—	Early Turnip rooted.
"	Long Blood.
Cauliflower—	Early London.
"	Late French.
Carrot—	Early Horn.
"	Red Atringham.
"	Long Orange.
Cabbage (summer)—	Early York (small.)
" "	Endfield Market.
" *(autumn)*—	Shilling's Queen.
" "	Large York.
" *(winter)*—	Quintal.
" "	Flat Dutch.
" "	Savoy Dwarf Curled.
" "	Red Dutch (pickling.)
Celery—	Red Solid.
"	White Solid.
Cucumber—	Short Green.
"	Long Green.
Lettuce—	Maltese.
"	Victoria Cabbage.
Musk Melon—	Scarlet Fled Cantelup.
"	Green " Nutmeg.
Water Melon—	Long Island.
Onion—	Large Yellow.
" "	Red.
Capsicums—	Large Yellow.
Parsley—	Double Curled.
Parsnip—	Dutch Hollow Crowned.
Peas—	Early Kent.
"	Blue Imperial.
"	White Marrowfat.
Radishes—	Scarlet Short Top.
"	Long Salmon.
"	Red Turnip Rooted.
"	White " "
"	Black Spanish (for winter,)
Rhubarb—	Myatt's Victoria.
" "	Albert.
Squash—	Scolloped Bush Squash.
"	Boston Summer.
Potatoes—	Early June.
"	Gold Finder.
"	Shaw's Seedling.
Spinach—	Round Leafed.
"	Prickly Seeded.
Tomato—	Large Red.
Turnip—	Early White Stone,
"	Golden Ball.
Herbs—	Sage.
"	Thyme.
"	Summer Savory.
"	Sweet Basil.
"	Sweet Majoram.

SMALL FRUITS.

Currants—	Black English.
" "	Naples.
"	Red Dutch.
" "	Grape.
" "	Victoria.
"	White Grape.
Raspberries—	Red Fastolf.
" "	Antwerp.
"	Yellow "
Gooseberries—	Red Ashton.
" "	Warrington.
" "	Ironmonger.
" "	Crown Bob.
"	White Whitesmith.
" "	Eagle.
" "	Caloline.
"	Yellow Golden drop.
" "	Lyon.
"	Green Ocean.
" "	Langleys.
" "	Gascoigne.
" "	Willow.
" "	Laurel.
Strawberries—	Early Scarlet.
"	Scotch Pine.
"	Hovey's Seedling.
"	Boston Pine.
Grape Vine—	Isabella (black)
"	Sweet Water (white).

NOTE.—Asparagus and Rhubarb, when it is possible, should be purchased in roots; seeds may be used when roots cannot be had, only it should be borne in mind, that as regards rhubarb, seeds will seldom produce the same variety from which they were taken, the plants so raised being almost always a hybrid sort, and that by using two year old asparagus plants, just so much time will be gained, unless where there may be the convenience of a hot-bed or frame. It will generally be found best to purchase celery in plants instead of seeds.

Round Spinach for summer may be sown soon as possible in Spring; one or two successive crops may be sown at from three to four weeks intervals afterwards.

Prickly Spinach, to stand the winter, should be sown about the middle or during the latter half of September. It will come into use with the first growth in Spring, and will last until the spring sowing comes in.

Peas should be sown at different times, to produce a succession of crops, say the first early sort as soon as the frost breaks up in spring, the second sort about three weeks later, and the third sort from three to four weeks later still; always proportioning the quantities to the probable wants of the family during the time that each sort may be in season.

In dry weather, such seeds as peas, beans, radishes, turnips, carrots, parsnips, &c., should be soaked in soft water from 12 to 20 hours before being sown; this will ensure their coming up. In the case of turnips a good plan is to soak half the seed and sow mixed with the other half unsoaked. This will give two distinct brairds, and consequently two chances against the fly. The seed must not be kept over after having been soaked.

ECONOMICAL MODE OF SETTING OUT FRUIT TREES.

If we could persuade every reader who owns a farm to plant out this spring two or three acres of fruit trees, we should consider that we had done more for our country than Parliament with its long speeches and enormous expenditure will be likely to accomplish for the next ten years. The *cost* of the trees is something, but to most of our readers who till their own soil, *that* is a small item. The labour of preparing the ground, setting out and cultivating an orchard, is a bugbear to many. So many have set out trees, and so many trees have died! But if farmers treated their wheat-fields as too many treat their young orchards, would they expect to find a crop at harvest time? We shall have something to say in a future number on the care and management of fruit trees. Our present purpose is to point out a cheap and convenient plan for preparing the ground and planting out trees. The season for this operation is close at hand, and we hope the hint may prove useful.

"After the land is prepared as for common farm crops, by such manuring as may be afforded conveniently, and by as deep a plowing as a single team will give with a common plow, proceed to measure off the distances of each row, and mark the places by stakes. Then begin by plowing a small "*land*" about six feet wide, so as to leave the dead furrow where each row of trees is to stand. Repeat the plowing on the same piece of ground several times, until the earth is thrown out down into the subsoil to a depth of about two feet. Then mark the places, by stakes, where each row *crosses* these at right angles, or in other words where each tree is to be placed. Deposit near each crossing, half a cubic yard of compost or old manure, throwing a portion of it about the place where the tree is to stand. Then proceed to plow the earth back again, one man being employed at the same time to pass along the row and to scatter the compost gradually and successively over a space of six by eight feet about the place for each tree, while the plowing is going on. In this way, a bed of rich, deep, mellow earth, formed of thoroughly intermixed soil and compost, over a space six feet by eight, is made at the place for every tree. An excavation large enough for the reception of the roots, is quickly made in this mellow bed of soil, and the tree planted by placing the unmanured and adjacent top soil next the roots. This mode of planting will be decidedly better than in holes dug by hand, for these strips of land being down the natural slope of the land, as they always should be, form a channel in the subsoil through which any surplus water, (which would otherwise stagnate in the dug hole,) may easily sink away, and not remain about the roots to injure the growth, as all stagnant water does in a most serious degree. This is especially the case with holes dug in hard clay subsoils, which hold water like a tub."

The *Country Gentleman*, a leading American journal, informs us that this plan has been found very advantageous for large orchards. We think it will be equally useful in the case of one, two, or three acres, with less than which no farmer should be content.

RAILROADS.—The total number of miles of railroad now open for traffic in Canada, is 1, 032, as follows: Grand Trunk, 404 miles: St. Lawrence and Champlain, 45; Montreal and New York, 28; Prescott and Ottawa City, 50; Cobourg and Peterboro, 28; Ontario, Simcoe and Huron, 95; Buffalo, Brantford and Goderich, 80; Great Western and branches, 285; Erie and Ontario, 17.

NOTES FROM AN OLD COMMON PLACE BOOK.

BY HON. ADAM FERGUSON, WOODHILL, C. W.

"O fortunatos, mimium sua si bona norint Agricolas."

"THE OLDEN TIME."

Dear Sir,—While you and other true-hearted Canadians enjoy the increasing prosperity of our noble Province, and firmly advocate unanimity and mutual forbearance, as the only pledges of eventual success, it may not be uninteresting to revert for a little to Agricultural matters in Britain during the earlier years of the present century, especially to features, then prominent, but which are not likely to appear amongst us.

I may premise, that in the following reminiscences, I shall probably not adhere over rigidly to the rules of composition, as regards *past and present*, but will be found sometimes quoting from my old notes, as matters actually passing, and again giving my recollections more as a narrative of things past.

About thirty years ago, I was domiciled in the County of Northumberland, Great Britain, where I enjoyed the benefit of living upon terms of cordial intimacy with the late Mr. Bates, and a large circle of distinguished agriculturists and breeders. It was a period of much agricultural prosperity (1813, 1814, and 1815) when an East Lothian farmer could point to stacks in his yard worth three or four hundred pounds a-piece, and butcher's meat readily fetched 1s. per lb. In 1022 it would take five stacks, same size, to reach that sum.

The sheep-shearing gatherings of Wobourn, Holkham, &c., shone in all their glory, bringing together thousands of the most enterprising, intelligent farmers of the land, and dispensing knowledge and zeal everywhere in copious streams.

Among the spirited landholders, who at an incredible expenditure of time, talent, and wealth, laboured in their praiseworthy vocation, no mean place was occupied by J. C. Curwen, Esq., of Workington Hall, long an active representative of the County of Cumberland in the British Parliament. My first visit to this patron of the plough, or perhaps I should, with greater propriety, say to his farm, was at his annual festival, held at Workington, in July, 1814. I had then no personal acquaintance with Mr. Curwen, nor did I bear any other introduction, beyond a mutual love of rural improvement.

My own residence was in Northumberland, in the vicinity of Hexham. I travelled by coach, *via* Carlisle, having sent on a saddle horse a day before. The weather was brilliant, but sultry, and the Cumberland farmers were in full progress with their hay. The grass is in general meadow, and the common system seemed to be, to get it, as fast as possible, into very diminutive cocks, not unlike inverted basins, and extremely liable (I should think) to take damage from rain, a visitation rather too frequent in the Western counties.

On the evening of my arrival, I sauntered up to the *Schoose*, Mr. Curwen's own farm, upon which he has erected an extensive and most commodious range of farm buildings. I found there Mr. Glover, a smart intelligent man, having a general charge of the live-stock department, and more especially of the milk cows, at present thirty-four in number, giving milk. These are all soiled, and never leave the stable.

Water is conveyed by pipes into their troughs. They were all healthy and hearty. Cases of twins were not unfrequent, and Glover thinks, that on such occasions, nature provides, an extra flush of milk. He makes a rule of separating immediately any cow which may cast her calf, considering it to be *catching* or infectious. From the byre, we took a stroll over part of the farm. The soil, in general, is heavy clay, rather coarse. Uncongenial as this is, for green crops, the potatoes looked remarkably well. They are grown upon broad drills, somewhat resembling "*lazy beds*," having two rows of plants in each drill. These are highly covered or earthed up by the plough, each drill being fourteen inches apart of each set, planted twelve inches from its neighbour. This mode of culture, in the clay soil, is said to answer well. Mr. Curwen is a strong advocate for soiling. He proposes, henceforth, to rear all his young stock in that way, calculating upon having them ripe for the butcher at twenty-five or thirty months old. His bull is thorough-bred improved Durham. The one at present in use, is a very handsome three-years old, bred upon Tyne-side, by Mr. Donkin. The accumulation of manure from soiling is quite astonishing. Urine from the tank is occasionally pumped over the dung-hill, by means of canvass pipes. At this date (25th of July) there is a whole year's dung in the yard, and this after supplying the large application to the green crops of the season. Mangel Wurtzel looks well. It was sown in April. The tops will be cut in August, for soiling. Glover considers this root to be of a somewhat aromatic nature, and with a portion of turnips has proved of great service, in attacks of red water. The roots are stored in November, and are found in excellent condition, after the Ruta Bagga is consumed. Mr. Curwen employs several ox teams. They are chiefly Hereford and Devons, all very superior animals. In the heavy soil here, it requires *three* yokes to plough *two* acres per day.

On the following morning, I rode up to some newly enclosed common land, now under improvement. Here I found Mr. Curwen, and, upon my own introduction, received a most cordial welcome. He sent for his horse; and insisted upon accompanying me himself over some of his improvements. It has been said that the man who makes two blades of grass to grow where only one existed before, has done well, in his generation. What then may he claim, who can exhibit as his own doing, what was now before us? Three hundred and fifty acres of noble wheat, where, two or three years ago, nought was to be found but heath and swamp and rushes. Upon Lily Hall farm, I found a man engaged in burning kilns or pies of rough sods. This may be done by the paring plough or spade. This latter implement has a wing on one side turned up which greatly facilitates the work. The kilns are kindled at the bottom, are closely covered up and the air carefully excluded. Occasionally the kilns are formed with layers of lime and turf alternately, yielding very valuable ashes. It is an Irish practice. Mr. Curwen has lately adopted a new method. He applies the lime *unslaked* and by pouring on water ignition follows and excellent ashes are produced, without live coal at all. He estimates his ashes to cost him 3d. per single horse cart, and with 60 of these, probably about a ton weight, he has had a better crop of Ruta Bagga that from 25 carts of well prepared farm yard dung. Mr. C. is partial to Cocksfoot grass for sheep pasture, and is this year laying down 100 acress for that purpose. He will allow this to lie for four years in pasture and then expects a luxuriant crop of wheat. Mr. Curwen does not approve of Wheat from Clover leg and has abandoned it in his rotation. After a most agreeable, and to me, instructive ride, we found ourselves where we had started, and a substantial lunch awaiting us, to which we did ample justice, aided by a score or two of smart boys and girls employed on the farm. In the evening I took tea at the Hall, accompanied by Crawford Mudie and several fresh arrivals. In the course of the evening we visited some well-formed water meadow. For irrigation, Mr. Curwen gives the preference to water from springs, as maintaining a more equal tem-

perature, than from other sources, always, of course, excepting stream or tide water, depositing a fertilizing sediment. From the meadows we adjourned to the potatoe store and steaming house. Mr. Curwen steams upon a large scale, frequently consuming a ton per day. He thinks in would be an improvement to introduce the steam pipe at the centre in preference to the bottom of the vats. The potatoe storehouse, is provided with ventilators, like a brew house, and very little damage ensues, even when the crop is stored rather clammy and wet.

Next morning, (24th) after a public breakfast at the Hall, we proceeded in formidable equestrian array, to inspect various farms, upon the estate. Soiling becomes very general. We saw some heavy crops of tares, intended to fill the gap between the first and second cuttings of clover. Tares are generally sown upon oat stubble, having a few oats and beans mixed, as props. A crop of tares upon Mr. Salkeld's farm was uncommonly luxuriant, and Mr. Mewson's second cutting of clover excited much admiration. Mr. Curwen had upon his own farm some remarkably fine second clover. He guessed it to be six tons per acre, but a portion being accurately measured and weighed, it proved to be over ten tons per acre. A single horse cart of this weighed thirty-seven stones. The cart itself weighed fifty stones. Mr. Curwen sows all his grain crops by drill, and for this purpose he has in use a great variety of implements. These were all set to work for our edification. One machine for sowing clover, drawn by one horse, is much approved. Mr. Gray of Kimmerston, near Wooler, Northumberland, described a smaller one, drawn by a man, which is much liked in his neighborhood. It was mentioned to-day that Mr. Curwen paid above £5,000 last year for labour, upon the Schoose farm. He sold £7,000 worth of wheat. His wheat is all red chaffed and regularly pickled to prevent smut.

In soiling cattle, he enjoins a strict watch against *hoeing* and always likes to give a portion of common grass before allowing the stock to gorge upon the heavy clover. He states his potatoe crop to average in general 2,000 stones per acre. There is at the farm a very complete weighing machine. It cost Mr. Curwen about eighty guineas, but his bailiff, Mr. Thompson, says it ought to have been set up for about £20.

We closed a most agreeable day by a large dinner party at the Hall, where Mr. Curwen had provided a fine turtle, from Liverpool, for our entertainment.

July 28th.—We resumed, this morning, our inspection of various farms on the estate, and found, in general, the crops and management highly meriting commendation. Mr. Curwen is zealous in the extirpation of weeds. A sturdy thistle was found flourishing on the bank of a ditch. It was forthwith cut and sent with a bantering message to the occupier of the farm, and which would, no doubt, explain some future rallying upon the subject. Mr. Kessock, a farmer from Galloway, spoke highly in favour of steaming chaff, both for horses and cattle. Mr. Curwen is particular in keeping his dung hills *quite close*, excluding air by heaping on earth and sods and never turning it over. He finds the dung come out quite black and moist. We found by the register, kept upon a slate, in the milkhouse, that the cows, thirty in number, gave yesterday, 90 gallons, which is fair, but not remarkable milking. The milk is delivered (unskimmed) morning and evening to families in Workington. In the course of our ride to-day, we were struck by observing in a very rich field of clover one spot entirely bare, occasioned by a portion of a drain having become choked. The mischief was very palpable.

Mr. Benson, High Sheriff of Cumberland, rode to-day a flea bitten gelding, a beautiful nag, bred by himself. He was gay and sprightly, although 26 years old. Mr. B. had hunted him fifteen successive seasons, without accident or blemish.

We concluded our evening most agreeably at the Hall.

29th.—After a continued inspection of more farms, we attended a ploughing match, and a competition of live stock, for premiums provided by the Lord of the

Manor. Both exhibitions were highly creditable. The 1st premium for a two year old heifer was adjudged to Mr. Sredding. She was of the Kyloe blood by a short horned bull. Mr. Sibson an extensive farmer, mentioned that his neighbours and he having suffered great loss by *quarterill*, had greatly diminished their loss of calves by inserting a root or clove of garlic in the flank of the animal, in November. Mr. Bates considers that it would probably act as a seton, a remedy which he himself adopts for a preventative or cure.

Dinner was served to-day in the Conservatory, and with 350 guests, the coup d'oel was truly splendid. Mr. Blamire, M. P. for Carlisle, and I were nominated English and Scotch Stewards for the following season.

After dinner we visited a Lancasterian school, consisting of 400 boys, established and supported by Mr. Curwen. In the evening we mustered at Workington Town Hall, where Mr. C. delivered a most eloquent and suitable address to an overflowing audience, and thereafter presented the prizes awarded. These consisted of fifteen or sixteen very handsome silver cups all donations from Mr. Curwen.

EDITORIAL MISCELLANY.

Testing Ploughs.—We thought we should have been able to state in this number the *day* when the Bingham, Howard, and other Ploughs would be tested at the writer's residence, Yonge Street; but the uncertainty of an early Spring —the snow being yet (29th March) *two feet deep* under the window at which we write— renders it hazardous to name the day at present. Mr. Modeland, of Brampton, whose plough took the first prize at the Provincial Show, has sent it for trial at the same time. We have no doubt the occasion will be one of considerable interest, and hope, by announcing the day in the City papers, to give all our friends who wish, an opportunity of being present.

Short Horn Stock.—A gentleman in the State of New York wishes to purchase some of the "best blooded stock" in this country to improve his herd, and asks us for Breeder's names, prices, &c. We have sent him the *Agriculturist*, but as many breeders do not think proper to advertise their stock, or state prices, we are unable to give such enquirers much information.

Fencing.—We have received several communications, making suggestions and enquiries on fencing since the discussion of that subject which appeared in the *Globe* and *Colonist*, and will also be found in the present number. The Revd. Thos. Schreiber, who has had much experience in the old country in growing Hedges &c., has sent us a statement of the cost (referring to the price of labour and materials in this country) of fencing a 200 acre farm, in ten acre fields, with the native thorn, and of protecting it for ten years, when, it is presumed, the fence will "stand alone," and turn cattle, &c. The sum, according to this estimate, will amount to £517. He sends also a sketch of the fence, with its side protections, of which we regret we cannot present an engraving at present. The estimate, and the remarks accompanying it, we hope to be able to give in our next.

Canadian Naturalist and Geologist.—E. Billings Esq. Ottawa, 1856.—We have received the first number of a Magazine devoted to the above subject, and from a hasty examination of its contents, we think it will prove a valuable contribution to the yet scanty collection of scientific observations, attested facts, and well digested conclusions on the important subjects to which the editor of this work has devoted much time, and no ordinary talent.

We trust that Sir W. E. Logan, our provincial Geologist, who has justly earned high honors abroad, will take measures to give *Canadians* some better text-book than the miserably

printed pamphlets, called Reports, which have been published from time to time by the Legislature. Why should we not, by this time, have a volume or two, with diagrams, maps, &c. illustrating and explaining the Geological structure of our country as far as the survey has developed it? If a young Canadian wishes to study the formations of his own country, he must pick up his knowledge from stray pamphlets and musty Reports. The State of New York has published several splendid volumes, which exhibit, in the light of modern science, all its underground mysteries to its own people and to the world.

In the absence of such a work as we have referred to, the Geological student cannot do better than take in the Magazine of Mr. Billings. Even with a well-digested, well-illustrated publication of the materials collected by the Geological survey, such a periodical as that before us will prove interesting and useful.

ILLUSTRATED ANNUAL REGISTER OF RURAL AFFAIRS.—Albany: L. Tucker. Toronto: A. H. Armour & Co.

This excellent little work has already had a notice in our columns It would be out of place to do more than again recommend our readers to purchase a copy for their perusal.

FRUIT.—We beg to direct the attention of those who desire to obtain good Fruit Trees, to the advertisement of L. Crosby & Co., Markham, whose assortment is large and well grown.

DEFERRED.—We are under the necessity of deferring, until our next issue, the publication of an interesting discussion on Galloway Cattle, held by the Hamilton Township Farmers' Club. This, with other interesting deferred matter, shall certainly appear in the May number.

For the Agriculturist.

SUCCESS TO THE FARMER.

Success attend the farmer bold:
I love to hear his name;
His eye so bright, his heart so light,
So honest is his fame.

I love to hear him talk of cows,
Of oxen and of grain;
His soul so free, so full of glee,
In sunshine and in rain.

I love to see him turn the sod:
I love to hear him sing
Of olden times, in golden rhymes,
Of winter and of spring.

I love to see his waving corn,
His horses, and his sheep;
Their fleeces white, their lambkins bright,
To see them skip and leap.

I love to see his harvest ripe,
And see his cradle swing.
His arm so strong, his strokes so long;
He's happier than a king.

I love to see his harvest home;
His wheat, his oats, his hay;
All safe and sound, laid close around,
In his capacious bay.

I love to see his thrifty wife,
So busy and so kind;
She takes due care his toil to share
Of body and of mind.

I love to taste her new milk cheese,
So good, so rich, so mellow;
I love to eat her bread and meat;
Her butter clean and yellow.

I love to see his children grow;
Their parents joy and pride;
His girls so neat, his boys complete,
In union side by side.

Who would not wish the farmer well?
The soul of all the rest,
In peace and health, in joy and wealth,
Who would not wish him bless'd?

WILLIAM PETHERICK.

Sparta, March 10th, 1856.

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THE

Canadian Agriculturist.

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PROFESSOR BUCKLAND'S AGRICULTURAL TOURS.

(*For the Agriculturist.*)

The Board of Agriculture having expressed to me their opinion of the desirableness of my visiting the country, and giving lectures to Societies, with a view of improving those organisations and of diffusing, as widely as possible, scientific and practical agricultural knowledge, it is my intention for the future to devote what time I can spare to this object, and I propose giving in the *Agriculturist*, from time to time, a brief sketch of the more interesting and suggestive matters that may come under my observation. Hitherto my personal attendance has been so constantly required on the grounds, that I have found it quite impracticable to visit the more distant parts of the country.

In October last, immediately after the Provincial Exhibition, I attended by appointment the Shows of the Agricultural Societies of the Counties of Kent, Essex, and Lambton, and subsequently reported to the Board thereon. A few words in reference to this journey may not be unacceptable to many readers of this Journal.

The annual Exhibition of the Kent Society was held in Chatham, October 20th. The day was delightfully fine for the season, and there was a larger display both of materials and visitors than usual. The Society has a most convenient piece of ground close to the town, granted some years since by the Government. The show of grains, dairy products, fruit, and ladies' work, was highly creditable, as was also the Live Stock, in each department of which there were several excellent specimens. The dinner took place in the evening, in the Town Hall; about 150 persons attended, and the whole proceedings went off in the best spirit. I had a good opportunity of speaking on matters pertaining to Agricultural Education, and the improvement of Agricultural Societies. The advancement of Chatham and the surrounding country since I was there before, seven or eight years ago, has been very great.

The Exhibition of the County of Essex Society was held in Sandwich, and the weather proved most unfavorable. Notwithstanding, there was not a bad collection

of materials, usually composing such exhibitions. Some of the cattle were good specimens, but the pure breeds seemed scarce. The horses in this part of the country are generally too small for effectually working the heavy soils which predominate; they have more or less of French blood, and are bred extensively on the wet plains at a comparatively small cost. In the afternoon I addressed the members of the Society and others in the Court-house.

In consequence of the unusual inclement state of the weather, the Show of the County of Lambton Society, held at Port Sarnia, was expected to prove a failure; it was, nevertheless, a good one. In live stock, although there were many specimens above mediocrity, the room for improvement is great, as is also, I was happy to observe, the desire. The grain and roots were mostly of excellent quality, and a more creditable display of butter is seldom to be seen even in older districts. In the evening I addressed the members on some of the more important topics in relation to agricultural improvement, and spent an agreeable hour afterwards in an interchange of views and suggestions relative thereto.

I was struck with the abundance of pasture to be seen almost everywhere throughout these Counties; indicating the natural fertility of the soil, and its happy adaptation to grazing purposes. The great thing needed is effective drainage, which in some parts would require conducting on a large scale. With this purely practicable object accomplished, this section would not be excelled for all the purposes of modern husbandry by any other in the Province.

I may state further, that I felt highly gratified with my visit to these Western Counties, not merely by signs of physical advancement which are everywhere apparent, but likewise by the manifestation of what may be correctly designated as the true British-Canadian spirit and loyalty of the people.

I attended, in February, the annual meeting of the County of Peel Agricultural Society, held in Brampton, and lectured in the Town-hall in the afternoon. This Society is progressing, and the improved breeds of cattle, horses, sheep, and swine are fast finding their way into this fine County. I had much interesting conversation with many of the farmers, and from the very scanty means of making observations in winter, I was led to form a very favourable opinion of the agricultural capabilities of the County of Peel.

I have since attended a soiree of a Literary and Mechanics' Association, recently established at Aurora, a rapidly thriving village on the Northern Railway. The attendance was numerous, and the proceedings very interesting, affording me an opportunity of urging the importance and means of agricultural education and progress. Next evening I addressed a respectable audience, consisting in great measure of farmers, at Newmarket. This part of the country was early settled; many of the fields are free from stumps, and the farms have often a neat and more finished appearance. The surface is beautifully undulating, making drainage in most cases easy, and the general appearance picturesque. Captain Beresford's residence has quite an English appearance, and I observed in his yards several specimens of well-bred cattle, sheep, and swine; some of the former consisting of pure Durhams.

The Captain is a rather extensive grower of Swedish turnips, which he feeds liberally to his stock, with much advantage.

About a fortnight since, I visited Paris for a few days, and lectured before the Mechanics' Institute of that town, to a large and most respectable audience, on the relations of science to practical agriculture. The bad state of the roads prevented many farmers at a distance from attending. I was glad to meet here, as I had on a previous occasion at Aurora, several clergymen of different denominations, who were evidently desirous of promoting the welfare of their valuable institutions. I enjoyed the hospitality of David Buchan and Henry Mogh, Esqrs., and the Messrs. Allchin kindly conducted me to see the characteristic features and improvements of the place. Since my former visit to Paris, some half a dozen years since, great changes and improvements have been effected; and few places, probably, are destined to reap so fully the advantages conferred by railways. Paris has unrivalled water power; what with the Grand River, and its tributaries, now so extensively improved by art, it is surely and steadily progressing in manufactures and commerce. Speculative excitement appears not to have attained to that hazardous note of intensity here as in some other places; a more healthy and enduring, if somewhat slower prosperity, has in consequence obtained. Surrounded by so pleasant and superior agricultural country, and with such great natural advantages, Paris holds out many great and substantial advantages, which can be procured on moderate terms by the mechanic, manufacturer, or trader.

From observations during the journeys which I contemplate making during the approaching summer, I shall be happy to cull such facts and information as will be generally interesting and useful to the readers of this Journal. In conclusion, I may add that from all I have seen and heard, the wheat plant is secure. Notwithstanding that spring operations are necessarily late, the prospect of an abundant year must, on the whole, be considered as encouraging.

GEORGE BUCKLAND.

Board of Agriculture, Toronto, April, 1856.

Pruning and Culture of Currants.—No fruit pays better for good culture than the currant, yet none is more generally neglected. As there is likely to be a scarcity of summer fruits this year, owing to the destruction of peach and cherry buds, &c., all who have currant bushes should bestow upon them special attention so as to increase their fruitfulness. Old and neglected bushes should have some of the old branches cut away, so as to give the young shoot a chance to fill their places, and these should be thinned out, if numerous, and shortened if long, so as not to crowd each other. But especially dig out the grass, if any, about the roots, and apply a good dressing of manure and ashes, spading it in; and when the hot weather commences, cover the entire surface under the bushes with tan bark, saw dust, old leaves from the woods, or chip dirt from an old wood pile; this will prevent the growth of weeds, and keep the ground moist, greatly promoting the quantity and quality of the fruit.—Gooseberry bushes should be treated in a similar way, only more attention should be given to pruning, so as to keep the bushes open and the leaves and fruit fully exposed to the air—cutting away half of the last year's shoots, and shortening the rest one half.—Cuttings of gooseberry and currant bushes should be taken off as early as possible, selecting the shoots of the last season's growth, and shortening the tops, say to 8 or 10 inches in length. They may be placed in the cellar, with the butts in the earth or sand, until the ground is fit for planting, then set them in warm sandy soil, about two-thirds of their length in the ground.

[We give a portrait of the Galloway, in order that such of our readers as have never seen them may form an opinion of their merits from appearance, as well as the statements of the gentlemen who took part in the discussion which follows.—*Ed.*]

TOWNSHIP OF HAMILTON FARMERS' CLUB.

GALLOWAY CATTLE.

The Township of Hamilton Farmers' Club met in the Township Hall, Coldsprings, on Friday the 1st February. This being the first meeting of the Society in the new Hall, it was well attended.

Mr. Matthew Forsyth, Vice President, in the Chair.

The subject of discussion was then introduced by Mr. Riddell reading the following paper on Galloway Cattle:—

Mr. Chairman,—I can scarcely account for the task of bringing the properties of Galloway Cattle before this meeting being laid upon me, as I am not a breeder of any class of pure bred cattle, my stock consisting wholly of Natives and Grades, and my inclination, tastes, and habits lying more in the cultivation of the soil than in the breeding of Stock; besides our Society numbers amongst its members Mr. Wm. Roddick, who was the first to introduce Galloway Cattle into this neighborhood, if not into the Province, and certainly he is much better qualified to bring their merits before you than I can pretend to be.

On a subject such as the present it is needless to pretend to originality, so I shall do little more than make a few extracts from some of the various writers who have written on the subject of Cattle. Of the origin and early history of Galloway Cattle I can say little. Martin, a celebrated English writer on Cattle thinks they are descended from the same wild Cattle that used to roam in the ancient forests of Caledonia, some of which, he says, are still to be found in Chatelherault Park in Lanarkshire, which are mostly if not always polled.

He says, the Galloway cattle are in great demand by the grazer; they are of considerable size, fatten readily, accumulate flesh on the best parts. They are less wild than horned cattle, and less quarrelsome, and under some circumstances, as on shipboard, may be packed somewhat closer than others. Youatt, a standard writer on cattle, says that "the Galloway is short on the legs, and moderately fine in the shank bones; the happy medium preserved in the leg, which secures hardihood and disposition to fatten. With the same cleanness and shortness of shank there is no breed so large and muscular above the knee, while there is more room for the deep, broad and capacious chest. He is clean, not fine and slender in the neck and chops. A thin and delicate neck would not correspond with the broad shoulders, deep chest, and close compact form of the breed. The neck of the Galloway bull is thick almost to a fault, the head is rather heavy, the eyes are not prominent, and the ears are large, rough, and full of long hairs, on the inside. The Galloway is covered with a loose mellow skin of medium thickness, which is clothed with long soft silky hair. The skin is thinner than that of the Leicestershire, but not so fine as the hide of the Short Horns, but it handles kindly.—The prevailing and fashionable colour is black, a few are of a dark brindle brown, and still fewer are of a dun or drab colour."

Though black is certainly the most common colour among Galloway cattle, yet I have seen a good many brindle and dun ones, and even one or two white. There used to be a small farmer in Upper Annandale who had a stock of white cows with black ears, celebrated for good milkers, which he maintained was the real pure Galloway breed. "It has often and truly been remarked," says Youatt, "with respect to the Galloway cattle, that while in most other breeds of Scotland there may be some good beasts, but mingled with others of different and very inferior kind, there is a uniform character and that of excellence.—Here one bullock selected at hap-hazard may generally be considered as a fair sample of the lot. They are generally docile; this is a most valuable point about them in every respect. It is rare to find even a bull furious or troublesome." Jackson in his treatise on Dairy Husbandry, says—"The Galloway breed of cattle is well known for various valuable qualities, and easy distinguished by the want of horns. It is broad across the back, with a very slight curve between the head and quarters, and broad at the loins, the whole body having a fine round appearance. The head is of a moderate size, with large rough ears, chest deep, legs short, and clean in the neck. This breed is highly esteemed, as there is no other kind which arrives at maturity so soon, and their flesh is of the finest quality, the milk is very rich, but is not obtained in very large quantities. It is no doubt true that this breed of cattle has been principally bred for their feeding qualities, yet I think their milking qualities has been greatly underated. I am informed by those who had experience of both breeds that the Galloway cows are fully equal if not superior as milkers to the native cattle of this country. Their hardiness too renders them suitable to soils and climate where the justly celebrated Short Horns even in England does not succeed. Sir James Graham, who is well known, not only in the high place in the councils of our native country, but also from the great attention he has devoted to the improvement of his estates, is reported to have said at an Agricultural Show at Netherly, some years ago—"I take blame to myself for having endeavored to introduce with considerable tenacity the Short Horned breed of cattle, which I am now thoroughly convinced is not so well adapted to thrive in the climate of this part of the country; but having now taken the Galloway breed as decidedly the best and most profitable, it has been my earnest endeavour to obtain from Galloway the best breed of cattle to introduce them among the tenants of my estates." E. W. Thompson, the worthy President of our own Board of Agriculture, in an address to the York Farmer's Club, speaks most favorably of this breed, and after describing their forms and qualities, says—"In the year 1851 I myself saw 3,000 at once in the market, as plump and fat almost as

it was possible to be." I can add but little to the above extracts, but I have no doubt they will prove a valuable addition to our stock of cattle as their hardiness will enable them to stand the rigor of our winters. Some years ago it was calculated by Professor Low that from sixteen to twenty thousand of the Galloway breed of cattle are sent annually to Smithfield Market, where they are highly esteemed for the excellent quality of their beef. But they are not only sent to the London market, but to most of the large cities in England. I read in a late British newspaper of the last Liverpool Christmas market, when it is said—"Among the finest cattle in the market were some lots of Galloways, fed in the neighborhood of Kircudbright. One of them a splendid bullock, fed by Mr. Stewart of Kirkchrist, realized the high price of £45 sterling. Mr. Tenant, Howell, furnished a quota almost equally remarkable, and five of his stately herd averaged £41 10s. each. And again, amongst the finest beef produced was a superior ox, fed by Mr. Rogers, Penkiln, and a couple of three year old heifers from the sheds of Mr. Elliot, of Hardgrove. These heifers had missed calf, and were fed off in consequence. They were sold for £35 each, and brought rather more than 8d. per pound which was we understand the highest price in the market.

This breed of cattle, as their valuable qualities become better known, though not brought into notice by any adventitious circumstances, has largely increased in numbers and spread over a large tract of country. I saw in the Dumfries *Courier* lately an account of the numbers and estimated value of the different kinds of cattle sold in that market for the past year. I copy as much as relates to the Galloways:

3 and 4 yr. olds,	2,966 at	£13	0	each,	£38,948
2 yr. olds,	8,236 at	9	10	"	78,242
1 yr. olds,	6,208 at	7	0	"	43,436
Cows and queys,	485 at	6	10	"	5,607
Numbers	17,925			Value	164,232

As I have extended these remarks to rather an undue length, I must hasten to a close, and in doing so I would take the liberty of urging upon all the necessity of feeding well, whatever breed be the object of your choice, whether our useful, though neglected Native, or the majestic and stately Durham, or the thrifty, vigorous Hereford, the sprightly, active Devon, the beautiful, milk-giving Ayrshire, the picturesque and shaggy Highlander, or my favorite, hardy, docile, hornless Galloway. Feed them well, for after all much, very much, depends upon keeping well. We may send to England or any where else for the best cows that can be got; we may search the world over to please the eye; but unless we give them the best care and liberal feeding, they will most assuredly deteriorate, and eventually become as unworthy of propagation as any of the breeds now to be found roaming on our rich, but much neglected pastures.

Mr. George Roddick said he was so thoroughly convinced that the Galloway breed of cattle would answer well in this country, that he had been at considerable expense in importing them. Those who keep them in Scotland find them a very profitable breed of cattle, being easily kept and very hardy.—There are still very few of them in this country, but he hoped to see them become more general. When in the old country making his selection, he found they were not so much famed for the quantity of their milk as for its quality, the best test of which, in his opinion, was to look at the calves they raise.

Mr. Bourn could not say anything either as to the Galloway or Ayrshire breeds of cattle, as his experience had been confined to Durhams, and what he preferred them for was that when they passed the pail they were easily fitted for the shambles.

Mr. Underwood would not class one Breed of Cattle with another but would rather say he has seen the Galloways tried in this country and thinks they will answer well, the young of which when kept out of doors seem to thrive better than others he has seen.

Mr. Pratt knew a farmer that raised a good many Durham Cattle, but kept Galloway Cows to raise them from.

Mr. McDonald was glad to see so many intelligent farmers around him; it shewed that they were fully alive to the benefits derived from such social meetings as the present. In the old country Agricultural clubs maintained a high position, in his opinion deservedly so, as they had been the means of disseminating a great deal of useful and valuable information amongst farmers generally. He had listened with great pleasure to the admirable essay on Galloway Cattle just now read by their able and energetic President; and in saying so he felt certain he re-echoed the sentiments of the whole meeting. Galloway or Polled Aberdenshire Cattle were highly esteemed both in Scotland and England for their large size and firmness of their flesh, and the readiness of their disposition to fatten. Under the judicious management of the late Hugh Watson of Keillor, Forfarshire, who may justly be called the father of the improved breed in Scotland, Mr. Combie of Tillifour and others they have now attained such a high degree of excellence, that for fat, symmetry and weight they would equal if not surpass the far famed Durhams. As a proof of what he said, he need only refer to the prices obtained for them in what he believed to be the greatest Beef market in the whole world—viz., Smithfield market, London, where when properly fattened they would fetch from 4d to 6d per 8lb more than any breed whatever. Their well known hardness of constitution, also, in his opinion, rendered them well adapted for standing the rigors of a Canadian winter. He could testify from experience that they would thrive and fatten in situations and on a quality of food wholly unsuited for their less hardy brethren the short horn. What better recommendation could any Breed have for the climate of Canada. He wished to say that he entirely agreed to a remark made by Mr. Riddell on the necessity of farmers having their Cattle properly housed, fed and attended to. If that was not done it was of little moment what breed they reared, or what amount of money they gave for them, he was decidedly of opinion they would never become profitable. He had come to Canada to try his hand at farming; the only stock in trade he had brought with him was the experience acquired during his lifetime as a farmer. Whether the system pursued in Scotland could under all circumstances be profitably followed here he was not able to form an opinion but, he would hazard one remark, viz, that the sooner the improved management of cattle was introduced the better, and he had made up his mind to follow the same course he had been used to in Aberdeenshire. There the rearing and feeding of cattle was now the chief object of the farmer.

Mr. P. R. Wright said, he did not think it even probable that the Galloways are descendants of the wild cattle, and must be permitted to differ from the authority quoted by Mr. Riddell. The wild cattle in Chatelbarall park belonging to the Duke of Hamilton in Lanarkshire, as well as those at Chillingham Castle, in Northumberland, the seat of the Earl of Tankervill, are invariably white, with black muzzle, the inside of the ear and about one half the outside red, white horns with black tips very fine and bent upward, and in their general appearance bear a strong likeness to the North Devon. I rather incline to the belief that the Galloway is neither more nor less than *a polled Kyloe*, his qualities and general appearance are so remarkably similar. Youatt says, that even so late as last century the greater part of the Galloway cattle were horned, they were middle horns, but some were polled, although they are certainly heavier than our West Highland Kyloe of the present day, this increase in

size would naturally have been produced by the richness of the pastures of the Lowlands, but whether their progenitors were the Kyloe or the Urus, need not be made the subject of discussion. The animal as he is, is what interests us. I, sir, have long believed them to be the best grazing stock in Scotland, I also believe that their native counties forming the ancient province of Galloway is peculiarly fitted, both from its soil, climate, and mode of farming, for rearing these hardy animals and although they have had to yield to the Short Horns, in those parts of their native district where the the turnip husbandry can be prosecuted to advantage, *and have been justly supplanted by the Ayrshire for the dairy*, yet where the rearing of grazing cattle is found the more suitable practice they still stand unrivalled.

In introducing new breeds of cattle into Canada, it is of the highest importance to consider whether they are constitutionally fitted for the climate. The rigours of our winter will soon tell on an animal that has been delicately reared, and I cannot but consider it vitally important that great attention should be paid to the natural constitution of any breed of cattle intended to be profitably reared here. The effect of climate and feed, has more to do with the *production* of different varieties of cattle than most people believe, and it is wonderful to see how completely nature adapts itself to circumstances. It would certainly be an unprofitable speculation to purchase the large Lincoln, or Teeswater sheep to pasture on the Grampian Hills, or to send the high bred Durham to fatten on the Shetland pasture; time will determine the question now raised by fanciers of different breeds, which is most suitable for this country, and it is well that a spirit of enteprise exists amongst Farmers which will give latitude to the test. Some gentlemen have observed that the milking qualities of the Galloways had been overlooked. Their advocates would do well to say but little on that point, their very appearance forbids the belief that they are fill-pails, and Youatt states positively that they are not good milkers, that the average quantity of milk given by a Galloway will not exceed 6 or 8 quarts per day, and that she will be dry one third of the year. The quality of the milk *may* be superior to that of cows yielding on the average three times the quantity, but I believe few experienced dairy men would be willing to place quality for quantity under circumstances so disproportionate. While he was glad to testify to the good qualities of Galloways as grazing cattle, he must be permitted to say, that as milkers they must be placed far behind the Ayrshire, which as a dairy animal, and for general thriftiness was unquestionably unrivalled.

Mr. W. Roddick.—So much has been said in favour of Galloway cattle by the previous speakers, that he found but little to add in addition to what has been already laid before the meeting. One thing, however, he would state, and that from experience, that they are easier kept in condition than his other stock which are principally Natives. He has fed all alike and the Galloways are now in better order than the others, and again they are very quiet and peaceable, you may turn them out along with sheep or other stock without fear of accident. As to milking qualities he thinks they are generally underrated as he found they gave as much as his other Cows, and had no doubt they would soon become more general in this country as well as in the United States, and from all quarters he has offers for calves.

Various other gentlemen having taken part in the discussion, it was moved, seconded and carried unanimously, that a vote of thanks be given to Mr. Walter Riddell, for his excellent essay, and that the next meeting of the club be held in Cockburn's Hotel, Baltimore, on Friday, the 7th March, at 1 o'clock P. M., and that the subject of disscussion be Agricultural Horses.

WILLIAM RICHARDSON,
Secretary.

TORONTO HORTICULTURAL AND AGRICULTURAL CLUB.

KITCHEN GARDENS.

The Second regular meeting for discussion of this Club was held on Tuesday, 18th March. There was a moderate attendance of gentlemen present; the President, Mr. Allan, and several other leading members being unfortunately absent from unavoidable causes. Mr. James Fleming, one of the Vice-Presidents, occupied the chair. The subject for discusion, "The importance of Kitchen Gardens as an appendage to Farm Houses" was introduced by Mr. Mundie, Landscape Gardener, of this city, whose interesting paper we regret we cannot insert in full. Our space will enable us to give the *practical* directions, only. The introductory remarks on the value and importance of the garden and its products, as well as the concluding arguments by which Mr. M. enforced his theme, were exceedingly well put. Those who may wish to see the entire paper will find it in the *Colonist* of 22nd March.

A kitchen garden of the present day, may be defined as a piece of land fenced in and set apart for the growth of vegetables, roots, herbs, and small fruits for cooking or kitchen purposes, as the name of the garden implies. The term small fruits, comprehends the various sorts of gooseberries, currants, raspberries, strawberries, cranberries, &c.

In choosing a piece of land to lay out a kitchen garden, the situation should not be very flat nor very elevated. In very low or flat situations, the moisture of the atmosphere renders the crops of all sorts more liable to be injured by frost, and on very high land the cutting winds of spring and early summer are also injurious; the blossom and young fruit are often damaged, as also the leaves of tender vegetables and plants of all descriptions, when in a young and growing state.

A piece of moderately light land, sloping very gently towards the South or South-East, avoiding the extremes of situation mentioned above, will under good management give every satisfaction. A point to the East will give increased earliness.

The farmers', or country kitchen garden, (and of which I am more particularly speaking) should be near the dwelling house, and should occupy a position if otherwise applicable, partly between the dwelling and barn or stock yard. If so situated, it will be convenient to manure, convenient for gathering vegetables at all times, and also convenient to cultivate, allowing every half hour to be employed to the best advantage.

The size of the garden should be regulated according to the wants of the family; for a family of six persons, half an acre will not be too much, and for any larger number the ground may be increased in proportion; always bearing in mind, that a small garden requiring to be crowded, is more difficult to keep than a larger space where there is room for proper regulation and rotation.

The shape of the garden may be adapted to existing circumstances, but if otherwise applicable, a quadrangular, or an oblong square can be cropped and cultivated to more advantage than irregular forms, which should only be adopted in case of necessity, either from the lay of the land or other difficulties which cannot be controlled.

The fencing is better to be close, to the North side, and partly so on the East and West ends; a shelter of trees outside the garden fence on the North side, North-East, and North-West corners, should be raised as soon as possible. The different kinds of evergreen trees (such as the balsam fir, the Norway spruce, the hemlock spruce, and the different varieties of cedar) will best answer the purpose at least those trees next the fence should be of this kind. They give most shelter at the time when it is most wanted, and their roots and branches are not so troublesome in undermining or overhanging the borders, as deciduous trees, or those trees which throw their leaves every season.

The first step towards the cultivation of the space which may thus have been set apart and fenced for a kitchen garden, is, to drain it thoroughly; some situations and soils there are which may not require the operation, but those are rare exceptions; and as a general rule, mostly all soils will be benefited by draining. The extent to which this may be necessary, must be determined by the nature of the soil to be operated upon; however, there is no fear of overdoing, as the more drains there are put in, the nearer perfection will the garden be; and on no account should draining be neglected when the garden is laying out, as if once it is planted and furnished, draining cannot be done so

well; nor can it be done at all, without undoing and destroying much that may have been already accomplished.

Having selected a point of outlet for the drainage water at some of the lowest corners, and from whence a sufficient fall or run can be got to carry it off; a main drain should then be led along the lowest side, to receive the water from the lateral or branch drains, which should be so laid out as to catch or intercept the natural sug or trituration of the water in the land, that is always going on from the higher to the lower levels. The drains should be extended through the border of shelter trees on the outside of the fence, which being on the North side of the garden will consequently be the highest, and the point from whence the water proceeds.

In most cases the drains will answer every purpose intended, if dug about three feet in depth; finishing the bottom to a graded slope or run, in the direction to which the land falls. The best materials for permanency are stone, or draining tiles; but no one should be deterred from proceeding because he cannot obtain any one material, as although the materials above mentioned are are the most durable, yet good substitutes may be found in either fence rails or brush wood, any of which if well put in and carefully covered with a tough green turf (as all drainage for trituration should be) will drain the land effectually for a period of from forty to fifty years.

The whole garden and tree border outside, should then be subtrenched, to a depth of not less than two feet; preserving 15 inches in depth of the original surface soil upon the finished surface; the subsoil below this 15 inches should be dug and loosened to the desired depth, but left in the bottom of the trench (hence the term subtrenching,) and 15 inches of the soil from the surface of the next trench thrown on the top of the loosened subsoil, and so on until the whole is finished.

The benefits of this subtrenching are manifold; it allows the superabundant water to percolate easily and quickly through the soil to the drains, leaving a deeply loosened porous body of soil fully saturated with moisture, but never to stagnate or get sour. It allows a perfectly free circulation of air, heat, and other atmospheric influences, to pass into and through the soil, more moisture is retained and held in solution during dry weather; the evaporated moisture from the bottom (which in shallow soils is brought to the surface and obsorbed into the atmosphere) being absorbed and retained by the depth of soil, in its passage upward, a small surplus only passing off by slow degrees into the atmosphere.

The roots of all plants and vegetables penetrate this loose soil to such a depth, as that even during long continuances of dry weather, they are seldom or never what we would call burnt or scorched; and having a greater range of pasture, they are much increased in size and value. But this is not all, their properties are also quite different; as from being produced upon a soil perfectly drained and ventilated (so to speak) and which allows all the organic elements free scope to play a part in their growth and maturity, we may be well assured that they are as superior to the productions of an undrained, untrenched, sour soil, as a man who feeds upon good, wholesome, well prepared food, and lodges in a well drained, well ventilated house, taking sufficient exercise, is superior to a man who lives upon inert matter, and lodges in an ill drained, ill ventilated house, taking little or no exercise. (The cultivation of the surface represents exercise.)

When the trenching is finished and the surface brought to a graded level, the walks should next be marked out. Cross walks may be put in to divide into convenient sized quarters, but one main walk all round the garden, at about from 9 to 12 feet from the fence inside is essentially necessary, because the borders next the fence being on some sides the warmest, and on others the shadiest, should be occupied with all kinds of small early and late crops, to cultivate and to gather which, it is necessary to have ready access at all times from a main walk.

Gooseberries, currants, and raspberries, with probably a dwarf pear in each corner (to break the sameness which would otherwise prevail) should occupy a border of about 5 feet wide, round each quarter, the bushes to be set in one line, about 6 feet apart, along the centre of this border; the black currant and gooseberry in the shadiest places. Raspberries should have a situation open to the sun most part of the day, as otherwise the wood will be winter killed. They may be planted 3 feet apart in line. Strawberries will do best in one of the open quarters, they should be renewed by re-planting every second or third year, and always on a fresh quarter. Rhubarb and asparagus may be advantageously planted in two exposures, the one in the sun, and the other in the shade; by attending to this, the season of these most excellent vegetables will be prolonged. The

ground for those should be made very rich with old and well rotted manure ; to be right, the manure and soil should be half and half.

I would not recommened planting flowers along the fruit borders, as they draw off the nourishment from and deteriorate the quality of the fruit, at the same time, from their tendency to nourish weeds and to harbour the seeds of weeds, they are often the cause of the bushes and edgings being so over-run, as perhaps from a temporary neglect, to get beyond all possibility of ever been cleaned. The walks for a garden of half an acre should be about four feet six inches wide, and so in proportion to larger gardens. The soil from the walks to the depth of from six to eight inches should be thrown upon the borders and quarters of the garden and the space so excavated, filled in with broken stone and gravel on the top, or with the best hard material for making walks, which may be within the reach and means of the owner.

Good cultivation includes not only the entire extirpation of all weeds as soon as they appear, but also, (and more especially in dry weather,) frequent stirrings of the whole of the surface of the ground, in the borders, and among the various crops as they advance in growth. If this be attended to, it will act largely as a preventive of weeds germinating, and also open the surface of the soil, encouraging the circulation of the air, as before spoken of, to proceed more freely, which is of essential benefit to all growing crops.

In some measure corresponding to these preliminary remarks, there must be an amount of preparatory labour before a kitchen garden can be expected to be either satisfactory or productive, and to any one not acquainted with the operations thus described, especially if they view the whole of the various improvements at once, garden making on this standard will appear to be a formidable business: but by directing the attention to each part of the work separately, and prosecuting that at all convenient times until finished in the best manner, and so on in succession proceeding systematically, I do not hesitate to say, (and that even to a farmer whose hands are sometimes pretty full,) that the work may be accomplished, without much inconvenience, and all the more easily from knowing, that by doing it in this thorough manner successful results are certain.

From a good kitchen garden attached to a farmer's or other country house, and having been prepared as above stated, the owner with his family may enjoy a large portion of either fruit or vegetable diet every day in the year ; but that can only be accomplished by carefully attending to the sowing and planting, cultivating and gathering, storing and preserving, all the various productions at their proper times and seasons ; yet, when this is gone about systematically (proper conveniences being provided) it will rather result in being, in a great measure, a pleasure than a toil.

As early as the end of April or at furthest in May, asparagus, rhubarb, winter spinach, lettuce, radishes, and top onions, may be gathered in profusion. When at the same time, from the former years stores may be supplied, turnips, carrots, beets, onions, parsnips, kidney beans, and cabbages, if they had been preserved in pits, with dried parsley and all the varieties of seasoning herbs such as mint, sage, hyssop, marjoram, thyme, savory, &c. ; also preserved fruits and pickles. In addition to which, during the early winter months' celery, with the various species of squash, and gourds will have been in use.

I have mentioned the months of April and May, because most people know that in those two months vegetables are scarcer than during any other period of the year ; yet, during those two months we have here a very good variety, all plain to be sure, but very valuable as an addition to a family diet: and I have taken particular care not to put down anything but what is quite easy and practicable to have at the season spoken of.

The saving effected from the addition of a plentiful supply of roots and vegetables to a family diet, will at the year's end be a very large item ; as by that means, more of the products of the dairy and poultry yard, with flour and flesh meat of all kinds may be marketed ; but the saving in point of economy is only a small portion of the benefit resulting from a proper mixture of vegetables with the aliment of a family.

The Chairman, Mr. Fleming, returned the thanks of the meeting to Mr. Mundie, for his valuable paper, which, if it went out to the country, as he hoped it would, through the papers, would show the people of the country how to proceed to effect some improvement in this important matter. He approved of Mr. Mundie's idea of having small model gardens attached to the common schools of the country. Any one who travelled through the country and witnessed the naked, desolate appearance of many of the schools, must be convinced of the good that would be effected by such a movement.

Mr. McDougall was sorry to say that the ideas of Canadians in regard to the pleasurable associations connected with the cultivation of the garden, were not generally of the

poetical nature described by Mr. Mundie. Rather the contrary. The weeds in this country grow so rapidly, and so obstinately, as to make the occupation of gardening on farms anything but pleasant or profitable. Perhaps, drainage as described by Mr. Mundie, would effect some improvement in this respect.—He believed, in fact, that the grand defect in gardening in the country was, that no thorough system of drainage was adopted preparatory to making the garden. In support of this he stated that he had cut a single deep drain through his own garden, and immediately adjoining this, not only had the plants grown much better, but the weeds were actually much easier kept down, and the soil became of a much kindlier nature. The effects, however, did not extend very far from the drain. A neighbour of his had claimed to have got rid of the evil of weeds by trenching the soil of his garden, that is, by digging two spades deep—burying the surface soil, and bringing the subsoil to the surface. He feared that unless some practical remedy of general adaptation could be found for this evil, Canadian farmers would not be easily prevailed upon to devote themselves much to gardening. Some of his neighbours had stated that they could actually buy vegetables more profitably from the gardeners in the Toronto market than they could raise them themselves.

Mr. Fleming, in reply to Mr. MacDougall's observations said, that in all cases, as for instance in case of a fine alluvial soil on the surface, and a stiff, tenacious subsoil, it might not be advisable to bring up the subsoil to the surface, as in such a soil plants would certainly not flourish. As for weeds, if they were allowed to gain headway, of course it would be a great deal of trouble to keep them down; but we must be up early in the morning and take them down while they are young.

Mr. R. Davis said, although a previous speaker appeared to have a contrary idea, he could very well enter into Mr. Mundie's feelings of pleasurable recollections connected with the cultivation of the garden at one's early home. He was used to gardens in his early days in the old country, where beautiful gardens were common. In this country gardens do not exist, both for physical and natural reasons. Money had been expended in making them, and the climate was unfavourable to keeping them. As to burying weeds below the surface in order to get rid of them, he was doubtful if that would be found an effectual remedy for the evil. The vitality of the seeds might exist till, in course of time, they would be brought to the surface again, when the condition of the garden would be as bad as ever. In the old country he found that flat hoeing was constantly practised to keep the weeds down; he doubted if that simple and effectual remedy was sufficiently preserved in this country. In this country, we labor under the disadvantages, as to gardens, of want of means, and of an ungenial climate. He agreed with Mr. MacDougall, that it would be difficult to persuade farmers to take kindly to gardening; though unquestionably if it could be done, it would be a great advantage.

Professor Buckland did not exactly agree with the last speaker, as to the great disadvantages of our climate for gardening purposes. Every country or climate had, in opposition to the natural or physical disadvantages under which it labored, some counterbalancing circumstances in compensation. In this country the severe frosts of winter, although, of course, entirely destructive to vegetable life, had the most beneficial and ameliorating effect upon stiff soils exposed to its influence. In regard to weeds, he would recommend setting out all plants or seeds in drills or rows, by which method they could be much more easily kept clean with the hoe. By perseverance in thorough hoeing for a year or two and allowing no weeds to go to seed, the evil would be overcome. He did not think that the circumstances of any who had any land suitable for cultivation could be such that it would be more profitable to buy their vegetables than to grow them. In regard to trenching, he had found in growing trees or shrubs; a great advantage from throwing up the subsoil, as the burying of the surface soil afforded a greater depth of loose mellow earth for the roots to penetrate, but in ordinary kitchen gardens, where the subsoil might be of a stiff character, this could not always be practised.

Col. Thomson would admit that there were not very many good gardens in Canada, but the great reason was that people did not set about making them in a proper manner. The garden was sometimes merely a small plot in the corner of a field, and perhaps very indifferently fenced. When the plants were getting into a good growth, hogs or cattle might break in and destroy a great part of them, and then the remainder were not considered worth cultivation, and of course the attempt at a garden resulted in nothing. He contended that it was absurd to say that gardening could not be profitably conducted in Canada. He believed that there was no country in the world where it could be carried on more profitably. The only thing necessary was to pay proper attention, and eradicate

the weeds at once as soon as they appeared. If allowed to get a start, and predominate over the plants, it would require five times the trouble afterwards to get rid of them. In regard to schools, he would be very glad indeed to see half an acre of ground attached to each common school in the country. It would afford profitable employment to the master, and instruction to the pupils. We should endeavour by all means in our power to cultivate a taste for gardening. If we could do so, we would effect great good. The farmer had many leisure moments, apart from regular working hours, that he could devote to the cultivation of his garden. He thought it preposterous to say that any farmer should buy his vegetables in the market, instead of producing them in his own garden.

Mr. Fleming said that when farmers could produce 800 or 1,000 bushels of Swedish turnips per acre in the field—as he had reason to know some gentleman present had done —there was no good reason why proportionate results in the cultivation of other products could not be obtained in the garden. He concurred in the importance of the drill system. It afforded great facilities for keeping crops clear of weeds.

Mr. McDougall did not wish to be misunderstood. He did not wish it to go abroad that he recommended farmers to buy all the vegetables they required. He thought, that Col. Thomson, however, imposed rather too heavy a task upon the farmers. He did not wish to be ungallant, but he would venture to say that the tending of the garden was rather the province of the ladies. The sterner sex of course ought to do all preparatory work, such as digging, draining, &c., but he thought the ladies might be expected to do all the lighter part of the work, such as sowing the seeds and pulling the weeds. If we expected the farmer, after coming home tired from ploughing or mowing, to go and weed in the garden, we should be disappointed. He did not suppose there was any "royal road" to the cultivation of the garden. It must of course be accomplished by steady attention; but when farmers saw the gigantic products that gardeners obtained, they were sometimes apt to suppose that there was some mysterious method of doing it, that they did not understand.

Professor Croft, alluding to a royal road to gardening, said the nearest approach to one he had ever seen was contained in a little book circulated a year or two ago, in which, amongst other similar things, was recommended as a method of destroying Canada thistles to drop a little spirits of turpentine in the stalk of each. (Laughter.) He would recommend, if Mr. Mundie's paper should be published, that it should be accompanied by a short list of the best varieties of each kind of garden plant that could be recommended as most worthy of cultivation in the farmer's garden.

Mr. George Leslie thought this a valuable suggestion of Professor Croft's. Many farmers did not know which of the different species of plants were the most desirable for cultivation.

After some further remarks from Messrs Croft, McDougall, Denison, and other gentlemen present, a Committee, consisting of Messrs. Croft, Buckland, Mundie, Fleming Leslie and Gordon, was appointed to make out for publication a brief catalogue of the seeds most worthy of cultivation in a farm garden. [The list was published in our April No.]

The club then adjourned.

UNIVERSITY COLLEGE.

To the Editor of the Agriculturist.

Sir,—I am requested to make some enquiries concerning the Agricultural Department in University College, Toronto, which if you will be so kind as to give us the necessary information, either by private letter or through the medium of your valuable periodical, you will lay myself and others under an obligation. What we want to know is,—

1st. What are the preliminary acquirements a young man is expected to have, in order to be admitted as a scholar or student in said Department?

2nd. What branches taught in our Common Schools would be more particularly desirable for a young man to make himself acquainted with as preparatory to a course in the above branch?

3rd. What length of time is necessary for a lad who has previously had an ordinary training in the Common Schools, to go through with a course of study particularly connected with Agriculture?

And 4th. What is the expense attached to such a Course, independent of board?

Yours, &c.,

Norwich, April, 1856. J. McKee.

Remarks.—We have much pleasure in answering our correspondent's enquiries, which we shall take in the order they are put.

1st. The necessary requirements for a young man to enter the Agricultural Department of University College consist of a general acquaintance with the English language, Arithmetic, Geography, and all such branches as are usually taught in ordinary schools.

2nd. Special attention should be given to Elementary Mathematics, Physical Geography, Mechanics, and Natural History, as more or less of these branches is now taught in most of the Common Schools.

3rd. Instruction in the Agricultural Department of the College commences in October, and terminates in April. The Course comprises the history, science, and practice of Agriculture. An intelligent and studious young man, particularly if he has some practical knowledge of farming, would make considerable progress during one Session, but the regular Course is spread over two.

4th. The amount of fees for three Courses of Lectures in the same number of departments, is £2 10s., for the academic year. Occasional students can attend any number of lectures, including the whole College Course, in all departments of literature and science, for £4, for the year.

The Agricultural student should attend the following Courses—viz., Chemistry, Natural History, including Botany; Geology and Mineralogy; Meterology; History and English Literature. These subjects in connection with the history, science, and practice of Agriculture, would most beneficially occupy the whole of his time. Thus a young man might in the course of one or two winters accumulate a considerable fund of literary and scientific information that would be of the greatest service to him in his daily pursuits.

The University of Toronto has recently established five Scholarships in Agriculture, of the annual value of £30 each. It is to be hoped for the sake of the character of our agriculturists, that these Scholarships will be speedily taken.

Professor Buckland will always be happy to afford any information that may be desired in his department.

LIVE FENCES.

To the Editor of the Agriculturist.

Mr. Editor,—I have read, with much interest, your remarks and those of other members of the Agricultural Central Club, on the subject of Live and Dead Fences. And as you appear to invite discussion on this matter, which is daily becoming one of greater importance to the community, I will make no apology for troubling you with a few suggestions bearing upon the subject.

When I move abroad, I generally keep my eyes open to what is going on about me in the fields and by the waysides—an open book, where those that run may read. I have noticed several kinds of Fence, which have been adopted in lieu of the "snake," and "post, and rail," either as being more sightly, more effectual, or less expensive. Some of these

seemed to be experimental, but as they do not enter into the description of those noticed by the members of the A. & H. C., I will venture to mention a few:—

First.—A good and efficient Fence, made with a solid foundation of surface stone, between two and three feet high, surmounted with a pair of stakes and a rider. Another more substantial, but more expensive—made with oak posts, and a sawn rail morticed in. This sort of fence, where stone is abundant, must prove in the end very advantageous, answering a double purpose, that of security, and clearing the soil of an encumbrance that must necessarily be removed. In the *first* example, labour is the only outlay; and it is labour that pays itself. A third is composed of an earthen or turf bank, surmounted with a stout post and rail, or two posts, which are secured by passing into auger holes in the post. This looks very well, and if well banked and turfed, would be efficient—the turfing or sowing down with grass and whi te clover would, I think, secure it from heaving with the frost.

A fourth was constructed with large stones intermixed with turf, which was well wedged and beaten in between the intervals—the large stones were so placed at distances along the line as to form buttresses. There were seedling thorns, young hemlocks, and cedars introduced into this fence, but few of these survived the first year; there was no ditch, only a trench, from which the turf and earth was taken. The bank was smoothed and sown with grasses, and forms a good embankment. I think it was also fu nished with stakes and riders. The gate posts were built in with stones and turf in this fence. It strikes me it might be advantageously adopted in many situations.

With respect to the Canadian Thorn as a fence, I think it quite as well adapted for fencing as the English or small-leaved Thorn. When young, its thorns are much more formidable, and by keeping it headed in for a year or two it would thicken quite as well.

To ensure sufficiency of plants, the seeds might be sown in a double row, steeping them for some days previous to sowing in *hot water*, the vegetating principle which is long developing in those stony-seeded fruits would be accomplished. If you can succeed in raising the plants by seed, where they are to grow ultimately, both labour and time are saved. Were I making the experiment, I would sow my seeds in the fall, or as early in the spring as possible. Nature never errs; she casts her seed into the lap of mother earth as soon as they are matured, or leaves them to the sowing of the birds of the air; these assist unwittingly in forwarding the vegetation of many of the hard-fruited plants and trees—the internal heat and fermentation to which they are subjected in the stomach of the bird prepares them for growth. Possibly a certain degree of fermentation, by laying the ripe fruit in heaps to heat, might answer the same purpose.

A living fence, say for a lawn or garden boundary, might be made very beautiful and serviceable, by planting the following varieties of trees and shrubs:—young hemlocks, cedar, spruce or balsams, birch, buck thorn, cockspur thorn, sweet briar; gooseberry slips, either wild or tame, or both; currants, especially black currants, which grow very stout, thick, and woody as they grow old; the bush honeysuckle, or twin-flowered honeysuckle, and the leather wood, give a pretty effect by the light bright verdure of the foliage, mixed with the dark evergreens; wild plums and English damsons may be sown, and suffered to remain as standard; also the wild red or choke cherry, which are most lovely either in fruit or flower. The tops of the larger trees must be headed in to a uniform height with the rest of the bushes. A few roses give a charm, either in flower or fruit, to an ornamental fence of this sort.

A wattled fence, which is often seen in the wooded parts of England, forms an excellent nursing fence for a live hedge during the first few years of its infancy. This simple rustic fence is constructed with stakes about four feet high, sharpened and driven in about two or three feet apart; between these upright stakes slender wands, as of the hazel or elm, or any tough fibrous saplings, are interlaced and well pressed down, so as to form a close rude basket work—a twisted band of willow or ozier completes the top. Then with the bill-hook, the hedger trims the inner side of the fence, leaving the outer with the twigs and sprays untouched, as it presents a greater difficulty to the inroads of frogs and fowls. The main objection to this picturesque fence is, that the snow lodging in it rots the sticks in the course of a few years, when it becomes mossy and gappy, and easily broken through: nevertheless it forms a good support to shrubs, if you wish to plant a moss fence within it. A fence formed of gooseberries alone, strengthened by a wattled fence in the rear, may be made impervious, by keeping it well trimmed. I have seen a sunken fence or haher surmounted by a hedge of gooseberries, which was impassable by man or beast, and produced yearly some good pie or preserving fruit. In this country

the gooseberry runs to wood very fast, thickening from the roots, so as to present a very great barrier to gathering the fruits, and tending to produce mildew by preventing a due circulation of air through the bush. Now, this characteristic as a hedge plant would be very desirable, provided we could command a certain height, the want of which was obviated by the sunken fence in the instance quoted above. As an auxiliary, the gooseberry may, at all events, be made very useful in a mixed garden fence. The common privet is also a good fencing shrub, besides having the advantage of being an evergreen. Our forests and plains produce many useful and valuable shrubs, that might be introduced very advantageously to the hedgerow; but, in most cases, to effect this change the seeds should be sown in the garden, and the seedlings transplanted, as very few shrubs nurtured in the thick forest shade will stand the change effected in their habits, by being transferred to open ground and sunshine.

To such fortunate persons who have time and inclination to attend to ornamenting the homestead, these suggestions may not be quite useless. It is rarely that the poorer class of settlers, however well disposed, can adopt and carry these improvements into effect; but while he turns back with a sigh to the flowery hedgerows of dear Old England, is obliged to adopt the universal snake or post and rail fence of this new country.

Oaklands. C. P. T.

STOCK RAISING IN CANADA—THE EXPERIMENTAL FARM.

To the Editor of the Agriculturist.

Sir,—Without going at present into detail, I would wish to draw the attention of yourself, as Editor of our agricultural paper, and our Board of Agriculture, whose office it is to foster the progress of our agricultural exertion and turn it in a right direction, to the importance to our country at the present moment that this exertion be turned into the best and most profitable channel. Our agricultural activity has of late years been most cheering, and we begin now to produce largely beyond our own wants; indeed, we have arrived at a point where an important feature of farming is not only production, but a consideration of the market which that produce shall supply. In older countries, whose means of production have been slowly developed, these things can be safely left to the natural working of demand and supply; but so rapid is our movement in the present day, at the same time we are sorry to say, it is among our agricultural classes accompanied by such a vast amount of commercial ignorance—perhaps the necessary result of their isolated individual position—that it becomes the province of such an organization as our Board of Agriculture to seek out information as to the most advantageous articles and modes of production, and most profitable sources of demand and methods of supply, and to diffuse that information as much as possible, so as to influence individual effort in a direction which shall at once be profitable to the farmer himself and the community at large.

In reflecting on the strides which agriculture has been making here of late years, we cannot but be struck with the anomaly, that the direction in which we are moving tends greatly to the course of the employment of more of the expensive article of labor to smaller portions of the cheap article of land. Now what brings us all to Canada?—Is it not the comparative cheapness of land. Why then regret that advantage to work at an even greater disadvantage than at home?

To illustrate my position, I will take the Turnip crop, which we are now beginning in some districts to grow very extensively. I will not at present go into minute calculations, but leave that for another time, when the matter may be examined more in detail. But take, in the gross, your land at 15s. per acre in Canada—at 40s. in England; this allows 25s. an acre for the difference of cost of labor between employing here men at 5s. a day, and laborers in England at a shilling—at which price in the turnip districts most of the work is done. Does any one imagine this amount will cover the difference in

the price of labor from sowing until housing? But again: our turnips are made into beef, at an extreme price of $7½ per hundred, while at home you may take, at the same proportion, $12½—making the selling price nearly double, especially when you reckon the additional cost of attendance. Again, in England, Fall Wheat can be sown after Swedes; here you have no chance for anything but a Spring crop, while the operations of hoeing and pulling interfere seriously with the work of the busiest seasons of our year. Our climate seems certainly not so well adapted to the Turnip as the moister one of England, especially during the earlier stages of its growth, when the elements of rot and decay seem here often introduced. While, after all, we question if filling the bellies of our cattle with such cold food is the most profitable mode of feeding in our severe winters. What say our theorists about animal heat and combustion? I should rather imagine a large proportion of the oleaginous and carboniferous seeds more suited to the purpose, combined with proportions of pea meal and clover hay, and straw, all of which we can grow so as to take advantage of our cheap article of land with little labor as compared with root crops.

I have spoken of turnips merely as an example of the labour-expending system, which, among its other advantages, keeps us thoroughly dependant on our most agreeable supply of workmen, not out of any malice at the splendid specimens of Roots we saw at last year's Show; for we were, we believe, the chief agents in producing, and hoed ourselves, twenty years ago, the first acre of Swedes grown in this quarter, drilled after home fashion, we were determined to try the matter in opposition to the misgivings of some of our neighbours, now extensive growers, who then contended that Swedes could not be grown in Canada, to any extent at least.

But we will perhaps be deemed more heretical still, when, with Mr. Mechi, we go a little further, and attack the whole Stock trade of Canada in toto, in its present shape. And we would suggest that this country is not competent, with her present breadth of land, to maintain the Stock now on it without an extravagant expenditure of the costly ingredient in its production—labor. She has now reached the point when she can supply her own demand, and prices must in future be, in a large measure, regulated by extraneous markets, if, that is to say, we go on increasing our production. Now, these markets are all to the south of us, and have every facility of supply from sources more southern still, and westward, where the wintering of Stock does not amount to one-half its cost and risk here; *ergo*, our Stock must be sold at nearly the same price as the supply brought up and wintered on the pastures and corn stubbles of those milder regions. Take our Pork, too, and we think our farmers are becoming satisfied that their freezing litters cannot compete with those mild districts which produce 50 or 60 bushels an acre, crops of corn; on which the pigs only need to be penned, with frequent changes, to complete their fattening.

But we fancy we see agriculture rising *en mass* in indignation—where are we to get our manure: we can't do without dirty dung. True, O king; but there are many ways of killing a dog besides hanging him, and we have little affection for too much of your dirty work. We think you will get your manure easier by letting your cheap land rest a season, and grow a green crop, to be ploughed in, and add some of the more minute ingredients required in the various classes of vegetable growth. This will be easier, we say, and cheaper, than leading out large quantities of barn-yard manure, which, from its rapid decomposition and great waste, is often very inefficient in its operation here. Now let us see how you could thus manure an acre from itself. Take an acre of second year's Clover, for example:—

A Bare Fallow.

Say rent	£0	10	0
Plaster and proportion of seed	0	5	0
Three fallows and harrowings..	1	10	0
Extra manure	0	10	0
	£2	15	0

4 ploughings and harrowings...	£2	0	0
Loading 20 loads dung—ten loads a day, horses and men at 12s. 6d	1	5	0
Spreading	0	3	6
Rent	0	10	0
	3	18	6
	2	15	0
	£1	13	6

Thus the land is ready for seed, on a rough estimate, at 33s. 6d. less per acre. Most of our wheat land in Canada might be managed after this fashion, and, indeed, we maintain that, after once being cleanly laid down, the land could be kept in better order under the clover course than the fallow; and the crop might be repeated at intervals of a year less, while the fibrous roots of the clover would give the land a grip without being stiff or hard, which would prevent the wheat plant from heaving to any extent in spring. Indeed, fibrous vegetable matter, to a moderate extent, lessens the conducting power of the soil, and tends to exclude the frost; while we know, that nothing is a greater protection against winter than the numerous little points and matted clods presented by such a surface.

We should be chary of growing the coarse crops, to any extent, on our Fall Wheat lands, as, from our experience in the average of years, we find their dirt greater than their profit, where we have no cheap labor for weeding. A clean mow keeps down all dirt, and even kills our thistles. We merely mention clover as an illustration; doubtless many other plants would be found adapted to our purpose. We feel that thus we should be taking advantage of our climate. In England your green material would in many seasons lie undecomposed, in wet lands, for a twelvemonth. Here two months will in summer suffice to destroy its fibrous organization. Our winters, too, point to the same course, from their large amount of mechanical action. Turn over a boulder lying on the surface, and if it be not very solid, you find winter has shelled off a quarter of an inch of disintegreted sand from its surface. On this naturally pulverized material, the acids produced in the soil by rapid decomposition of vegetable matters, at once act chemically, and food for plants is thus formed at an enormous ratio, in excess of its production in the slow, sober climate of England.

These processes, combined with the difference of our mercantile position, call on us Canadians to adopt a system of husbandry widely different from that of the old country. We have less time to do our work in, but our country is faster, and we must be faster too, and must embrace all means which nature offers to help us.

In these rough remarks we would be far from seeking to lessen our Stock: we can eat all we yet have, but we would put them over more land, redeemed first from the growth of unprofitable crops, next from the forest. We would have more pasture, and feed our Stock fat before winter on abundant herbage; then freeze some, salt some, preserve some by chemical agencies, say charcoal, and keep a little for the epicures fed at a costly rate on turnips and oily seeds, and clover hay; but make them pay first if they want it.

Young Stock might be wintered on our large abundance of straw, with a little allowance of oil-cake; crushing establishments would arise, whereby a portion of the oil might be extracted from the seeds grown; and perhaps flax or hemp might be made from a portion of our produce, so as to increase the profit, while by this process of management, the crop being often repeated, one-fourth more wheat might be grown on the same extent of land, with less labor than at present. Wheat seems the staple for which Canada in its present position is peculiarly fitted. We doubt if the United States will ever do much more than supply their own consumption; so much of their surface is situated in a poor wheat-growing region. While they can produce almost any amount of Stock for their own supply as well as exportation, our Stock cannot be shipped to European markets fresh, and salted; it must meet a heavy and increasing competition from milder regions. Our wheat, until we get a region to the north to take our Stock, must be our main stay. Our fine water communications will carry it to all quarters of the world, at a trifling cost; and all Western Europe, and even the Southern Colonies, will ever want it while it is an article of produce, under proper management, peculiarly adapted to our climate. But a large produce of it on our soil, whose vegetation is so rapid, can only be kept up by taking advantage of its own reproductive powers. Our land will exhaust its fertility unless we allow it to renew and increase its vegetable ingredients, by taking advantage of its own capabilities. Grow enormously bulky crops and plough them down, and you maintain its vitality in an ever-increasing state, neglecting not, however, to attend to the action of its mineral ingredients. We speak of winter wheat lands—a large portion of our Province. For our black soils sufficient employment would be found, under such a system, in producing the seeds and coarse grains required for feeding.

We have been impelled to these few observations by the reflection, that the Canadian farmer is not making use of the means placed before him; he is not taking advantage of his cheap land. Our farms are too small, and our farmers are among the hardest work-

ing slaves on earth, merely because they are attempting to carry out a system unadapted to their opportunities. We are sorry to hear so little in such directions from our Model Farm School. Our farmers keep no accounts, but, generally speaking, calculate their profits by rule of thumb; but surely it is not so there, and we would like to hear more of the results of profit and loss—the true index of good farming. Have our Board of Agriculture never thought of establishing a medium through which our farmers wishing to improve might get a cheap and reliable analysis of soils and manures. Surely where the labor of handling is so costly, this is the country where we ought to deal in the less bulky manures.

ROBERT HUME.

Tyne Dale, Port Hope.

METHOD OF CURING BAD TUB BUTTER.—A quantity of tub butter was brought to market in the West Indies, which, on opening, was found to be very bad, and almost stinking. A native of Pennsylvania undertook to cure it, which he did in the following manner: He started the tubs of butter in a large quantity of hot water, which soon melted the butter; he then skimmed it off as clean as possible, and worked it over again in a churn, and with the addition of salt and fine sugar, the butter was made sweet and good again.

BAD EFFECTS OF GRASS ON COLTS.—When horses are turned out to grass in the spring of the year, the succulent nature of the food causes them to purge, often to a great extent; this is considered by many persons a most desirable event—a great misconception. The herbage is overcharged with sap and moisture, of a crude, acrimonious nature, to such an extent that all cannot be taken up by the organs destined for the secretion of urine, or by the absorbent vessels of the body; the superfluous fluid therefore passes off through the intestines with the indigestible particles of food, and thus the watery fæces are thrown off. Flatulent colic or gripes is a frequent attendant. The system is deranged; but the mischief does not terminate here. If the purging is continued, a constitutional relaxation of the bowels is established, very debilitating to the animal, and often difficult to control. I am so decidedly opposed to unrestricted allowance of luxuriant grass to horses at any age, that nothing could induce me to give it to them. After the second year, hay should form a considerable portion of the daily food in summer to every animal intended for riding or driving. So says the *Mark Lane Express*, an English agricultural journal of high character.

SOAP.—To make Windsor soap, slice the best white soap as thin as possible; melt it in a stew-pan over a slow fire; scent it with oil of carraway, or any other scent, and then pour it into a mould made for that purpose. When it has stood for three or four days, in a dry situation, cut it into square pieces, and it is fit for use. An excellent toilet soap is thus made: Take a quarter of a pound of old Castile soap, slice it down into a pewter jar, and pour upon it two quarts of alcohol; place the jar in a vessel of water at such a heat as will cause the spirit to boil, when the soap will soon dissolve; then put the jar, closely covered, in a warm place until the liquor is clarified; take off any scum that may appear on the surface, and pour it carefully from the dregs; then put it into the jar again, and place it in the vessel of hot water; distilling all the spirit that will arise; dry the remaining mass in the air for a few days, when a white transparent soap will be obtained, free from all alkaline impurities, and perfectly void of smell.

A VALUABLE HINT TO BUILDERS.—The *Scientific American* publishes the following suggestion from a correspondent, and endorses it as sound and reasonable advice. We venture to say it is worth more than five dollars, to any man who is about to build a house in our cold climate:—"This cold winter brings to mind a matter connected with the building of houses which I do not remember ever to have seen in print, and which, if generally known, is seldom practiced. It is this: in any cold climate cellar walls of houses should never be filled in around with loam or clay, or earth that retains much moisture, because the frost expands it, and it exerts a great pressure against the walls, tending to thrust them out of position. The effects of this are seen in the many cracked walls; the breaking of window and door sills and lintels; unjointed verandahs; and windows and doors rendered incapable of opening and closing, &c. In our New England States, this costs us many thousands of dollars yearly, all of which may be saved by filling in a few inches of sand or clean gravel next the walls."

FOUNTAINS.

Iron Fountains are now made in a great variety of forms, some of which are highly ornamental. They are used for gardens and lawns where a running stream can be obtained, either by means of a water ram, or by taking advantage of water running at a higher elevation than the spot selected for the Fountain. There are many persons in Canada whose situation is favorable, and whose means will warrant the expense of this desirable ornament. The one of which the above is a representation, is of the composite order, embracing a variety of figures, each of which might be taken for a single fountain. They are made in parts, and can be sent from the manufacturer's like any other castings.

To Keep Cider Sweet.—I have tried several ways of keeping cider, and have found the following to succeed :—I let my cider work until it has fermented a little, and then pour in a tea-cup full of mustard seed in each barrel. Please insert this for the benefit of those who love good sweet cider in the winter. L. R. W.

Virginia Egg Bread.—Dissolve one table spoonful of butter in three and a half pints of milk ; add one quart of Indian meal, half a pint of wheat flour, a little salt and two eggs well beaten ; mix all well together, and bake in a buttered tin.

AGRICULTURAL MACHINES.

SEYMOUR AND MORGAN'S REAPER versus McCORMICK'S.

To the Editor of the Canadian Agriculturist.

Sir,—As you are in the habit of noticing in your valuable paper the different Agricultural implements, which are now being made in almost all parts of the country. I trust you will allow me to call attention to some of the articles got up by Mr. Thomas Goodfellow, at his machine shop in the flourishing village of Bradford, in this Township. The articles manufactured at his establishment are of such skill and material, that in many respects they cannot be surpassed north of Toronto. He expects to turn out about fifty Reaping Machines this season, some of which are now ready for the field. I had the pleasure, on Monday last, of seeing one of them in motion; and as I have had the opportunity of seeing and working several other machines of different make, which have been brought into this part of the country, I can safely say that it is superior to the best of them, both for workmanship, steadiness in motion, and lightness of draught.

Since I commenced to write, I have received the April number of your *Agriculturist*, wherein I notice McCormick's Reaper described as being the best for the farmer's use. I would take the liberty of asking the gentleman who works that small farm, on what principle he calls it the best? I am certain it is not for lightness of draught, nor for the easy position of the raker in tending it. I think he will find that Seymour & Morgan's will cut from eight to ten inches wider, and can be drawn by one span of horses with as much ease as McCormick's can with two span, especially on uneven ground. I can drive my Reaper through a gate or bars ten feet in width, without any difficulty. I last season cut eighty acres of wheat, that averaged thirty-five bushels per acre, in six days, with one team of horses. When you can do that with McCormick's Reaper, I will take the trouble of writing again. Yours sincerely, A Farmer.

West Gwillimbury, April 22d, 1856.

Our friend in West Gwillimbury has slightly mistaken the tenor of our remarks in the last number. We did not describe McCormick's Reaper as "the best for the farmers use." If "a Farmer" will read the remarks again, he will see that we took some pains to guard ourselves on that point. Again, "the gentleman who works a small farm," referred to in the article, sold Seymour & Morgan's machine because it was *too large* for his gates as well as his fields. He did not buy McCormick's in its stead. Probably our correspondent had been reading Mr. McCormick's advertisement, and mixed up his assertions with our qualified opinions.

PLANT POTATOES EARLY.

We think we cannot give our readers better advice than to plant their potatoes, of whatever variety, early. Our own experience last year with a great number of varieties, as well as the results of late planting in the case of several neighbors, convinced us of the disadvantage of the practice. The frost last year killed the tops in many fields before the tubers were full grown, and in all such cases loss has been sustained. We find some remarks in the last No. of the *Country Gentleman* in corroboration of this view. The writer says:—

"Let those who are not yet satisfied that this is a good rule, plant a few rows or a small patch as soon as the soil is dry enough to work well, and the balance of the land intended for this crop either all at once a few weeks afterwards, or in portions at intervals of a week or so between each planting. Of each planting let a square rod or some other area or measure be taken, and let the result at harvest-time, both as to *quantity* and *quality*, be carefully noted. The result, we are confident, will prove interesting and instructive, not only to those who try the experiment, but also to many who, like ourselves, would be

glad to have a report of the experiments and the results given to the public through this paper.

Until such experiments are made, and the results made publicly known, those who endeavor to conform their practice to the best ascertained facts, or best established rules, will plant early. Experiments have already been made in sufficient number and with sufficient accuracy, to make it almost a settled matter that potatoes planted as soon as the soil is mellow and dry, will yield a more abundant and sounder crop than the same kind of potatoes on the same or similar soil, when planted 10, 20, or 30 days later. The most satisfactory of such experiments which have been reported to the public are those of Mr. H. H. Eastman, of Marshall, Oneida Co., N. Y., a summary of whose various experiments in potato culture may be found in the vols. of *The Country Gentleman* and *The Cultivator* for 1855. For the sake of those who have not these vols. at hand, we may say that to test the question of early, medium, and late planting, one plot was planted in 1852, on the 18th of May, another on the 23rd of May, and another on June 8th, and these plots yielded respectively at the rate of 142, 131, and 100 per acre. The experiment was again tried in 1853, and resulted as before in favor of early planting. While those planted May 9th yielded 104 bushels, those planted May 30th gave but 70 bushels, and those planted as late as June 18th gave only 45 bushels per acre.

Previous to the invasion of the rot, potatoes were generally planted in June; but the old rule must now be laid aside, and the new one at the head of this article substituted in its place, in order to secure the best crops."

HEREFORD CATTLE.

To the Editor of the Agriculturist.

Owego, Tioga Co., N.Y., March 31st, 1856.

Dear Sir,—As your paper frequently contains the *praises* of Short-horn Cattle, and exhibits *portraits* showing enormous size, allow me to send you the *actual weights* of some of the prize Herefords, and prices obtained for them. The following is an extract from a letter to me from Wm. Heath, Esq., Ludham Hall, England, dated March 10th, 1856, the well-known winner of Prizes at Smithfield and Birmingham Cattle Shows:—

"Since receiving your letter, I have been staying in Shropshire and Herefordshire, so thought would put off writing to you until my return. You wish to know the weights of some of my prize Herefords. A two years and ten months' Steer (four quarters, beef only) weighed 92 stones (1280 lbs, 14 lbs to the stone), winner of the Gold Medal given for any breed of all ages in London, 1850. A four years old and eight months' old Ox, 134 stones (1876 lbs), winner of £30 in London, 1851. One three years and nine months' old, 126 stones (1764 lbs), winner of second prize of £15. The next Hereford I showed was at Birmingham, 1853, two years and eleven months' old, winner of the Gold Medal and £30. I brought him home again, and showed him the following year in London; he won the first prize of £25, and, had he had justice done him, would have won the Gold Medal, 1854. I showed at Birmingham a Hereford the same year, winner of the Gold Medal and £30. This is very singular. These two animals were twins bred by Mr. Thomas Carter, Dodmore, Ludlow; the former weighed 129 stones (1806 lbs), the latter 133 stones (1862 lbs); their ages, when killed, were three years and eleven months. I bought them the end of October for £50, sold them, December 1854, for £120: they won me in money £75, and the two medals are worth £40 for old gold. These two Herefords made me in all £245. I showed a Heifer, winner of first prize of £10 at Birmingham, four years and ten months' old, weighed 96 stone (1344 lbs). I showed in London this year, winner of first prize of £25, sold him for £65, three years and eleven months, weighed 128 stones (1792 lbs). A Steer I showed in the young class in London, 1854; he had not a prize awarded him, which, in my opinion, he should have had; so I had him brought home again, though blamed by several people, but I said if he was not a good one I could not get one. I showed him this year at Birmingham, won the Gold Medal and £30; sold him for £67 10s; he weighed 136 stones (1906 lbs); was three years and eleven months old. You see he was a good one at last. It is no use having

an opinion if you do not back it. I am not a breeder myself, but buy every year from four to five hundred beasts to graze, so have a chance of picking out some good ones. About 260 of these are Herefords, the rest Devons and Scots. I do not like Short-horns; they are *tender* and *large consumers*, want to be kept *high* and warm, do not pay so much money. These weights are all for beef only, and 14 lbs to the stone.

"I keep 430 South Down Ewes; they have just finished lambing; very good luck; they have more than 630 lambs, lost only four ewes and a few lambs. The weather is fine and nice for them; and every appearance of an early spring. Write me when you receive this, and at any time I can give you any information, will willingly do so.

Yours truly, WILLIAM HEATH."

Mr. Heath breeds early lambs for the London market, feeds the ewes the same year, buying in the fall—a practice with many graziers in England.

The following is an extract from another very extensive grazier in England, Richard Rowland, who will never graze any other breed but Herefords, which was the practice of his late uncle, Mr. Westcar, the noted Buckinghamshire grazier. The following is an extract from Mr. Richard Rowland's letter to me:—

"I have not shown Oxen of late years; the breeders, in a great measure, have been the exhibitors. I was an exhibitor for some years after I came here, and took three prizes with Hereford Oxen, which weighed from 260 to 270 stones, 8 lbs to the stone. This was beef, hide, and rough fat, and that was about the weight my late uncle, Mr. Westcar's large Oxen reached. I enclose the prices of some of his Oxen, the weights I do not know, except in a few cases."

I chance to have a copy of the weights of Mr. Westcar's Hereford Oxen that took first prize at Smithfield, in 1810, 1812, 1813, 1814, and 1815, the first four are given as follows; they were all seven years' old, quarters, hide, and loose tallow included, 2147 lbs, 2059 lbs, 953 lbs, 2141 lbs. Those of Mr. Rowland's corresponding from his weights by the stone, are 2080 lbs—2160 lbs.

"A memorandum of the price of twenty fat Herefordshire Oxen, sold by the late Mr. Westcar, of Creslow, Buckinghamshire, England, from his book—

Dec. 16, 1799—Sold Mr. Chapman, Fleet Market, London, 2 Oxen for...	£200	0	0
" 4, 1800—1 Ox to do.....	147	0	0
" 15, " —1 Ox to Mr. Harrington, London.....	100	0	0
Nov. 26, 1801—6 Oxen to Giblett & Co., Bond Street	630	0	0
" " 1802—1 Ox to do.....	100	0	0
Dec. 31, " —1 do., to Mr. Chapman.....	126	0	0
" " " —2 do., to Mr. Horwood, London.....	200	0	0
" 4, 1803—1 do., to Mr. Chapman, do.....	100	0	0
" 19, " —1 do., to Mr. Reynolds.....	105	0	0
" " " —1 do., to Mr. Giblett.....	105	0	0
" 5, 1804—1 do., to do.....	105	0	0
" 4, 1805—1 do., to do.....	100	0	0
Nov. 28, 1811—1 do., to Mr. Chandler.....	105	0	0
	£2123	0	0
Average.....	£106	3	0"

A extract from a letter from Edward Price, Esq., Pembridge, Leominster, Herefordshire, England:—

"In December last, I sold to the agent of his Royal Highness Prince Albert, 4 1-year-old Hereford Steers for £130. The weight of my three years and ten months' old Hereford Heifer, which took the first prize of £10, and £20 extra money, and Gold and Silver Medal at Birmingham, was 18 scores per quarter in her beef (1440 lbs). The only reason I give the weights and prices of these Herefords is—the Short-horn breeders have always been *boasting of early maturity and great size.* I contend that the *weight is the proof.* Now I want to see Short-horn breeders show such *proofs* as above. I quote from Mr. Lewis F. Allen's Short-horn Herd Book, page 59, the following:—'Hutchinson says—No breeder

acted with so much foresight and sound policy; for who but themselves would have thought of feeding any animal from calfhood until seven years of age, *in so extravagant a manner*, as the white Durham Heifer and the Durham Ox were fed, and made *monsters* of? The scheme was a deep-laid one, and succeeded to a miracle. She, as well as the Durham Ox, was shown all over the kingdom, and raised the character of their breed in the opinion of the world, to the highest pitch of eminence.'"

I wish every one of your breeders and readers to examine this quotation from the Short-horn Herd Book; and then tell me whether it does not represent *deceit of the worst kind?* Does it reflect any credit on the author, or to him who quotes it, as praise to extol? Does it enhance the value of Short-horns? In my opinion it *condemns* them in the estimation of every upright, honest person. And what was the weight of this noted, famed Ox, when he was killed, at eleven years' old? According to Mr. Berry and Mr. Allen's quotations in the same Herd Book, he weighed, beef, hide, and tallow, 2620 lbs. I have frequently heard it said in England, that Mr. Day used to give this Ox *many bottles of port wine to make him sleep.* I was present when Mr. Berry was asked whether this was true? and he equivocated the answer, but admitted that he was extravagantly fed and forced to the extreme. I will call the attention of any reasonable, *well-bred*, intelligent, or *unprejudiced* man to the weight of the lightest Steer above named, and then tell me whether he would not have weighed *heavier* than this noted, puffed Ox, if forced under the same treatment? And I ask whether Short-horn advocates generally have not pursued much the same course, forced their breeding animals, to obtain *artificial prices?* I again ask them, whether these are their principles of breeding?

I was very much amused a few weeks since, while visiting Mr. M. McMicking of Stamford, Canada, who has been a breeder, and an advocate for Short-horns, but has now two Hereford Cows and a Bull. Mrs. McMicking thought the Short-horns gave so much more milk than Herefords, and wished to get rid of the latter; but when the Herefords were absent at the Show at Cobourg, Mrs. McMicking then found that their *butter* greatly diminished, which changed her views from Short horns to Herefords. Whoever tries hese two breeds fairly together, will find this to be invariably the case. I contend, where you find *first quality of beef* in any animal of any kind, and (which never varies in a well-bred Hereford) you find the first quality of milk, though not the quantity. I am thoroughly convinced that Herefords will make more beef and more *butter*, for the food they consume, than any other breed. They only want to be tried, to be proved and appreciated. My impression is, that they can beat the Short-horns *in every point.* The breeders of the latter have had every opportunity, by *challenges*, to test this, but they have never had courage enough to meet them. Had they confidence in their breed, some of them would have had *pluck* enough for competition to *examine* Mr. Allen's quotations of "Hubback," the noted Hubback, and it corresponds with the *forced* description of the white Heifer and the Durham Ox. All is mystery. Again, *examine* the three different names of the Short-horns quoted by Mr. Allen, and tell us which is the "name, proper." I could go on with many other corresponding quotations from Mr. Allen and others; but these are enough.

I shall be happy to see some explanations why such *stuff* should be connected with the register of "first-class Cattle," only to condemn.

I am, dear Sir, yours truly, WILLIAM H. SOTHAM.

P.S.—It will be remembered that where most of the above prizes were taken, Short-horns numerously contended, and these statements are made by graziers and not by breeders, except in the case of Mr. Edward Price's Heifer.—W. H. S.

GARDEN TOOLS, &c.

In the March number, we gave cuts of several pruning tools, &c. We now add a few more, for use more especially in the garden.

Fig. 1. is a Ladies' Garden Fork. It is made of steel, neatly finished, is light yet strong, and is very useful for working among plants and flowers. They are made with either round or flat prongs.

Fig. 2 is called an "Avarrancator." It is attached to a pole, and operates by means of a lever moved by a cord and pulley. Its use is to enable a person, standing on the ground, to prune trees, some of the branches of which could not, perhaps, be pruned by any other process. Branches of one inch in diameter may be easily cut off with this instrument. Avarrancators of small size are also very useful in cutting off from shade and fruit trees small branches to which insects have attached themselves; they are also used for gathering fine trees, which, when cut, will fall into a basket attached to the instrument when used for this purpose, and for cutting scions and buds, which it is always important to take from the top branches.

Fig. 3 is a Tree Scraper. The cut represents a very convenient form for scraping and smoothing the bark of trees. It is simply a triangular plate of steel, each edge being four inches long, and attached to a socket through the centre, with nut and screw. A wooden handle is fitted in this when used.

Fig. 4 is a Floral Rake. It has six teeth, with a polished steel hoe blade on the opposite side, with handle fifteen inches in length, for weeding beds, &c. It is a neat implement for ladies' use.

Fig. 5 represents a Grass Edging Knife, which is used for paring the edges of grass bordering walks, &c.

All these tools are very useful, and are now sold so cheap that ladies, who are not afraid to work with their own hands in the garden, should insist on being well supplied with them.

Waterproof Cloth.—For waterproof cloth, a saturated solution of water, sugar of lead, and alum, being prepared, the cloth should be immersed in the fluid for a few hours; on withdrawing it, and allowing it to dry, it will be found impervious to rain. The cloth should afterwards be hot-pressed.

APPLES.

Several Kinds in one Tree.—In grafting large trees, several varieties of scions are frequently employed in forming one new top; there are several objections to this practice.

Every one at all familiar with fruit trees, must have observed that each variety has a mode of growth peculiar to itself, and those who have had much experience can often ascertain the kind, when not in fruit, by this circumstance alone. Some varieties are vigorous and of rapid growth; others are slow and unthrifty, and others of short duration and subject to decay early. A tree combining these discordant elements can possess little of symmetry or beauty, and the most judicious cannot remedy the evil. For instance, a tree may be grafted with the Northern Spy, which is of remarkable upright growth; the Roxbury Russet, which is horizontal, or spreading, and the Spitzenburg, whose branches are drooping or pendant. In a few years the scions clash and entangle, and it will be impossible to give them the proper form or direction, and when the tree comes into bearing the defect will be still more apparent. There is another objection to having more than one variety in a tree; it creates confusion in gathering the fruit, and where the kinds somewhat resemble each other, they are liable to get mixed, causing dissatisfaction among the purchasers. Where a person has but little land, and a few large trees which he is desirous to graft to other varieties for his own use, and who is willing to dispense with a good formed top, it may be justifiable to put several kinds into he same tree, but in extensive orchards it should be avoided.

WATERING CATTLE.

Being under the necessity of going out in this driving storm of snow to see that my stock are watered at the neighbouring brooks, has impressed on my mind the loss I am suffering by not having provided water for them in their stalls, or in the barnyard adjoining. This same brook runs within two hundred feet of the barn, where, at an expense not exceeding $50, machinery could be placed, that by the power of the water itself, would yield a constant supply of pure water for as many cattle as the barn will accommodate. That this is so I know, because on my neighbors farm, where he keeps constantly fifty or more cows, and as many oxen, horses, and other animals, as are needed on a large farm, for the last *five years*, he has obtained all the water they needed, both winter and summer, from a small pond in his pasture distant 2500 feet, forced through a lead pipe, by a fall of only 13 feet head—the original cost of the preparation did not exceed $200. Here, then, at an expense not exceeding $20 a year, is obtained a convenience that is equivalent to the services of one man, and an additional benefit more than double this saving. Think also of the saving made, in the droppings of the animals, one-half of which would be lost by their roaming abroad, and irretrievably lost, when dropped in and floated away with the stream. This is no fancy picture; instances of this kind may be seen in every farming village; aye, more, we have known farmers who have boasted of their convenience of watering their cattle at the brooks, or neighboring ponds, as their fathers for *a hundred years* had done before them. It is perfectly easy to demonstrate, that the loss sustained in fertillizers, by this careless usage, in this period, at a moderate valuation, would exceed the present value of the farm, at a high valuation. So much for heedlessly going on in the steps of those who have been before us, without regard to consequences.

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Remarks.—The above communication is an exeedingly valuable one. It is the notice of such practical every day wants of the farmer, that gives an agricultural paper much of its value. Water arrangements are generally expensive, but that should not deter one from making a beginning. We know a good farmer—one of the best—who pumped water forty for years, forty head of cattle per day. Now this would require at least a minute for each animal twice a day, making eighty minutes, and of very hard work, too. At length after wearing out some dozen pumps, and pretty nearly wearing out himself, he dug a well in the side of a hill twenty-one hundred feet from his barn, put in a half-inch gutta percha pipe, and for sev

eral years past has had the felicity of seeing the water run down hill by its own gravity, and filling his ample troughs to overflowing, where the cattle may slake their thirst at will. It also serves for many other purposes, and all accomplished at the cost of one hundred and fifty dollars.—*N. E. Farmer.*

Our friend Brown has not footed up the above account, nor furnished us with the aggregate results of forty years pumping. Eighteen minutes of hard labor each day, for that length of time, will amount to no less than four hundred and sixty-four days or eighteen months—the cost of hard labor for that time could not be reckoned at less than $300 at very cheap wages. The cost of the dozen pumps, and of the wear and tear of the man, we cannot estimate so well, for the want of data.—*Country Gentleman.*

The labor of pumping from a well or cistern, in or near the barn-yard, is no doubt a serious item; but we think the loss of manure from driving cattle to creeks, or ponds at a distance, as well as the insufficient quantity of water they are apt to be supplied with in such cases, are more serious objections. Where the situation is favorable, a water-ram may be employed to deliver water in the barn-yard, at an expense so small that a prudent farmer would be justified in procuring it. But in ordinary cases we would not be deterred by the labor of pumping from resorting to cisterns. An improved chain pump is now much used for cisterns, and wells under 25 feet. They work light and fast, and do not freeze, an imdortant recommendation in this country.

NOTES FROM AN OLD COMMON-PLACE BOOK.

BY HON. ADAM FERGUSON, WOODHILL, C.W.

"O fortunatos, nimium sua si bona norint Agricolas."

Concluded.

1815.—In the interval between last Workington meeting and its successor, I had removed to Scotland, and now prepared to enter upon my duties of *Scotch Steward.* It was expected of the individual who filled that station, that he should fetch up a *good tail* of friends and neighbours. It was my good fortune to secure a most excellent turn-out. We travelled by various routes, taking care to muster at Workington upon the 30th of July, the day previous to commencement. Mr. Curwen received us with the most polite and hearty welcome, introducing us to a large assembly of agriculturists. Among these was the *Irish Steward* of the year, Christopher Fortesque, Esq., of Glyddfan, Ardee, County of Louth, and P. Ruxton, Esq., of Rect-house, a member of the Irish bar, brother-in-law to Mr. Fortesque, and warmly attached to rural pursuits. Mr. Fortesque was all that can be found in a high-bred Irish gentleman, and I believe no man can require more to be said in his favour.

Our arrangements were pretty much akin to last season. The mornings were bestowed upon inspection of farms and various improvements. We found the use of Ashes growing in favour. Those produced by layers of lime, shells, and sods, or, as Mr. Fortesque facetiously denominated, the application of water to produce ignition, *burning without fire,* we found to be making rapid advancement. Turnips, raised with 60 cwts. of Ashes, were at least equal to those manured with 100 cwt. of best farm-yard dung. Potatoes cultivated upon the system which I detailed last year, promised to yield a luxuriant produce. The field under this crop contained 37 acres. Mr. Dickson, of Barigholm, near Leith, and who is a very competent judge, estimated the crop to be 40 Linlithgow bolls per acre. Mr. Dickson, by the way,

pays largely to Heriot's Hospital for his farm. It contains 90 Scotch acres, for which he pays in rent £8 1s. per acre. He disposes of the *whole produce*, purchasing City dung, at 5s. per single horse cart. His clover yields him £22 per acre, and is, for the most part, consumed by carters or teamsters, as horse feed. His rotation is Wheat, Potatoes, and Clover; but to return to other matters. We had several extensive Dairymen from London and its precincts, who gave us much information on their semi-rural occupation. Mr. Faulder, of Elton, in Kent, and several others, agreed that they never reckon, in an average, from 500 to 1000 Cows upon a larger daily produce than 8 or 10 quarts from each Cow. They draw their supplies of cattle from ordinary Short-horns, purchased by agents in the northern counties, at prices sometimes as high as £30 a piece. A few of these occasionally prove deep milkers, giving for a time 20 to 30 quarts per day. When the Cows fall below a certain average, they go to the butcher. When dried, they are soon ready, and make excellent beef. It was mentioned that the *fulness and depth of the milk vein*, and will form a very fair test of a good milker, and, sure enough, the best Cow in Mr. Curwen's byre was eminently well provided in that quarter. I have mentioned Mr. Curwen's high appreciation of *soiling*, and he declares that his views are more and more confirmed. Having an Ayrshire Heifer at this date, 18 mouths old, and who had *never set hoof upon pasture*, she was ordered to be slaughtered for trial. As the experiment was intended to illustrate two different modes of estimating *live* weight, compared with *dead*, or sinking offal, the Heifer was measured by Ainslie's tables, and gave four feet in a line from shoulder to rump, and five feet eight inches in girth, inside the fore-quarters. This measurement gave about 30 stones as the net weight, 14 lbs per stone.

The other method to be tested was by what Mr. Glover called his magical number, 556. The animal was weighed *alive*, and stood 55 stones. Glover's plan is to multiply his number by the live weight, and knock off the three right hand figures of the product. In this trial it stood thus—

$$556 \times 55 = 30(580, \text{ giving 30 stones as the net weight.}$$

Both tests were found nearly alike, and both of them sufficiently near the truth, for ordinary farm dealing. The Heifer was rather over 30 stones, sinking offal, and had, moreover, 2 stones 4 lbs of loose fat. The beef was beautifully marbled.

It would be tedious to dwell upon each day's occupation. The meeting went off quite as well as that of last season, and much in the same manner. On the last day, we dined 425 in the Conservatory.

Our Irish friends having expressed a wish to visit the Lakes of Cumberland, and return to their home by Scotland, we made up a party, and left Workington upon Friday evening for Cockermouth, where we slept. Starting early on Saturday morning, we reached Mr. Kirwen's beautiful island upon Windermere to breakfast, where we found him in waiting to give us a hearty welcome. One leading character in the travelling party was George Rennie, Esq., of Phantassie, East Lothian, probably taking him, all in all, the best farmer of his day, and at all times hearty and communicative. Upon this occasion he was in high glee. We visited, *en route*, several crack farms upon the border. Among others, we looked over the farm where *drilled*

turnips were first introduced by Mr. Dawson. We also visited Bogend, farmed in good style by Mr. Thompson. The farm contains 800 acres, under the plough. Mr. Thompson is particularly noted for his Leicester sheep, and, for the convenient disposal of which, he occupies a large farm in pasture, near Morpeth. To return. We reached Phantassie upon Monday, where a kind and hearty welcome awaited us. Mr. Rennie farms his own estate, upon which he has five miles of thorn hedges, all neat and close, without a gap. It is full employment for one man to attend to them, nor can he do it without occasional assistance.

Mr. Rennie's arrangement of crops for this season is as follows:—

Spring Wheat, after Turnips	60 acres.
Winter Wheat, after Summer Fallow	90
Oats	60
Barley	20
Beans and Pease	42
Turnips (60 White, 20 Swedes)	80
Tares	14
Potatoes	6
Hay	45
Pasture (first year)	60
Old Pasture	45
	522 acres.

His ploughmen go nine hours a day, from 5 to 10 A.M., and from 2 to 6 P.M. They do nothing else upon the farm, devoting their spare hours to the care of their horses and *gear*. Mr. Rennie deems it very bad policy to be *exacting* either upon man or beast. He has a large distillery upon the farm, but finds it a precarious adjunct for cattle feeding. In fact, he lost £1500 upon his distillery cattle last year. In Turnip culture, he allots to Swedish 14 double cart loads, and to White Globe 12 carts of best manure per acre. He feeds them almost entirely to Sheep on the field, or an adjoining pasture, and reckons upon twelve four-year-old Blackfaced Wedders to each acre. Upon these he should clear 12s. or 14s. each. In stall feeding on Turnips, he allows two Oxen for each acre of roots, and these, when fat, will be at least 80 Dutch stones each, and should pay £6 or £8 each for their food. If they run over 60 stones when fat, they will probably give £12 each for feeding. Mr. Rennie estimates a command of sea-ware, for manure, to be worth 30s. per acre.

We spent two most delightful days with Mr. Rennie and our East Lothian friends. From thence we proceeded to Edinburgh, and thus broke up our party, I believe to mutual regret.

CHILBLAINS.—To cure chilblains: Simply bathe the parts effected in the liquor in which potatoes have been boiled, at as high a temperature as can be borne. On the first appearance of the ailment, indicated by inflammation and irritation, this bath affords almost immediate relief. In the more advanced stages, a repetition prevents breaking out, followed by certain cure; and an occasional adoption will operate against a return even during the severest frost.

COOKING THE APPLE.

The Apple is both nutritious and wholesome and deserving a more prominent place in the catalogue of table fruits than is generally assigned to it. Sweet apples contain a large amount of saccharine matter and are probably more nutritious than the sour varieties. The apple, however, like all other fruits should never be eaten in an unsound or unripe state, and the fairest and most perfect fruit should always, if possibly, be selected for use.

Apple Syrup.—Take a dozen fine semi-acid ripe apples, pare and cut them into thin slices, and put them into a stone bottle with a gill of water and one and a half pounds of powdered sugar. Cork the bottle and boil it gently (in a kettle of hot water is better) two hours, and then suffer it to cool. When nearly cold, flavor with orange-flower water, or lemon, or any other essence which may be desired, and pour it into wide necked bottles for use.

Apple Custard.—Take large and fair tart apples, core them, and fill the openings with sugar, and put them into a well tinned pan, scatter sugar on the whole and flavor with lemon peel orange, or cinnamon.—Bake until soft, then put them in a dish, and pour over them a custard made of eggs and milk, in proportion of four of the former to one quart of the latter.

Apple Pottage.—Take ripe apples carefully pared aud cored, and put them in layers in a stone or earthen jar alternately with layers of sugar. If the apples are sweet, a little lemon or quince intermingled will give it a better flavor. Cover the whole with wheat paste or dough and place the jar in the oven for baking. Let it remain all night and it will make a delicious dish for breakfast.—*Farmer and Mechanic.*

OIL VARNISHES.

In these varnishes, as in spirit varnishes almost every operator has his own receipts. So that it is only the general outlines of their composition that can be given.

Drying oil, or boiled oil, is one of the most common varnishes, and is used to mix with colors, partly as a vehicle, and partly to cause them to dry quickly. Linseed, or nut oil, is boiled with a very small proportion of dried white lead, litharge, saccharum saturni, or white vitirol, generally an ounce either of each article, or a proportionate quantity of several to the heat of oil. Sometimes the oils are merely left to stand upon litharge for a long time.

Oil varnishes for covering pictures are not much used, as they are not easily removed. They are mostly composed of gum mastic, various proportions of copal varnish, Canada balsam, and thinned with oil of turpentine.

The varnish used for bright armor and weapons, by our ancestors, was 3 lbs. of brown rosin, 2 lbs. of turpentine, dissolved in 10 pints of boiled linseed oil.

The engravers' varnish for covering copper plates, and preventing the acid used in etching from corroding the places wished to be left blank, varies much in its composition. The hard varnish used with Callot's aqua fortis is merely mastic dissolved by boiling in an equal weight of drying linseed oil.—Le Boffe's soft varnish, which is that generally used in England, is made by heating 2 oz. of white wax, and adding to it, by degrees, first, 1 oz. of mastic in fine powder, and then 1 oz. of asphaltum, keeping it on the fire until all is completely dissolved.—Mr. Lowry used 4 oz. of asphaltum, 2 oz. of Burgundy pitch, and 2 oz. of white wax, melted together. The varnish called the soft ground is prepared by adding some veal suet to the soft varnish already described.

The French artists use gum benzoin instead of asphaltum, making their soft varnish of eight ounces of linseed oil, in which is dissolved one ounce of gum benzoin and white wax, and keep it on the fire till one-third is boiled away. For their hard varnish they add more white wax, so as to enable it to be made into a solid ball.

The superior clearness of copal to either shell lack or amber, gives it an advantage in varnishes and japan work; but the difficulty of dissolving it, either in oils or spirits, is very great. By grinding it with camphor, or by first melting it and letting it drop into water, it becomes more soluble.

The japanners' copal varnish is made by melting 4 lbs. of copal in a glass matrass, until the vapor condensed upon any cold substance, drops quietly to the bottom; then adding first a pint of boiling linseed oil, and afterwards about its own weight of oil of turpentine.—*Scientific American.*

TORONTO MARKETS.

April 29th, 1855.

The supply of farm produce on the market during the past month has been very light, and but for the importation of many articles from the other side of the Lake, exorbitant prices would have been paid. As it is, the market is rather depressed, and prices tend downward. In wheat there have been about twelve loads per day changed hands at 7s to 7s 8d per bushel. The price has varied but little throughout the month.—Flour is drooping, and wholesale dealers are very cautious about investing. Sales have taken place at $6 for Superfine, $6¼ for Fancy, and $6¾ for Extra.

Barley, in demand, 5s 2d per bushel.
Pease, 3s 4d to 4s per do.
Oats, scarce, 2s 6d to 2s 8d per do.
Timothy Seed, 45s per do.
Rye Seed, 18s 6d per do.
Onions, 3s 9d per do.
Potatoes, 3s 9d to 4s 2d per do.
Carrots, 3s per do.
Turnips, 2s per do. Pork, 40s per 100 lbs.
Beef, 37s 6d per 100 lbs.
Sheep, 27s 6d each.
Lambs, 15s to 16s 3d each.
Calves, 25s to 41s 3d each.
Butcher's Meat, 4½d to 9d per lb.
Hay, 85s to 110s per ton.

TRIAL OF PLOUGHS.

The Trial of Ploughs spoken of in this Journal, came off on the 29th April, near York Mills. There was a good attendance of farmers, as well as several distinguished persons from a distance. Five Ploughs were tested with the dynanometer, viz., Modeland's, Bingham's, Howard's (English), No. 2 Lap Furrow (American), and the Iron Scotch Plough The following gentlemen were named a Committee to report on the trial: D. Christie M.PP.; John Wade, Esq.; Col, Thompson; and J. C. Aikens, M.PP.

We have not space in this Number for the Report of the Committee, but we give below the result of the trial as indicated by the instrument:—

	DRAUGHT.		FURROW SLICE.	
			depth.	*width.*
	cwt.	lbs.	in.	in.
Modeland...	3	108	6	8¾
Bingham....	3	96	6	9
Scotch.....	4	32	5⅝	8¼
Howard	4	32	5	8½
Lap Furrow	4	28	5	10

The soil was a tough clay-loam sward, but in good condition for ploughing. A more detailed notice will appear in our next.

Our Premiums.—In our last Number we neglected to mention that the following premiums had been offered to our Agents:—To the regularly-appointed Agent who shall, within three months of his appointment, send

The largest number of Subscribers ...$25
Second largest 20
Third do... 15
Fourth do..... 10
Fifth do. A copy of the Farmers' Guide ($6).

We thought that these Premiums would incite our agents to greater exertion, but must say that, with the exception of *one or two* cases, we have been disappointed. We believe that many are labouring under the idea that they have no chance of gaining one of the prizes, and do not exert themselves as if they thought otherwise. We would desire to state to such that they have yet a chance. Another month is yet allowed to most of them, and with very little exertion we are assured that those who are far behind will carry off the first prizes. No competing agent has yet got more than 120, and we are much mistaken if some of our backward agents could not obtain that number, counting what they have already got. We say to all, "try again."

The names of the successful competitors cannot be announced until the 1st of July.

Good and Cheap Lands.—We direct the attention of our readers to the advertisement of the "Illinois Central Railroad Company's Lands." Parties desiring to move westward, or to settle their sons, will find this an excellent opportunity to buy cheap and excellent lands. Read the advertisement.

Erratum.—Typographical errors can hardly be avoided in a publication like the *Agriculturist*, as the Editor can seldom see the proofs more than once before the form goes to press. The proof-reader sometimes mistakes words that are technical, and sometimes printers attempt to make corrections, which thereby become errors.

In the April number, a correction of this kind was made. In the last paragraph on the first page, beginning—"That it would be impossible to do without fences," &c., the word *possible* should have been used. The sense is the opposite of what the speaker intended. Often the context sufficiently points out the error, and to many it will be evident in the present case.

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DURHAM BULLS.

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March 28th, 1856. 4-4t

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The work will be conducted as usual by Wm. McDOUGALL, Esq., who has resumed the practice of Agriculture near this city. The active promoter of the various improvements made in our Agricultural Legislation since 1847, and having also been connected with this Journal from its commencement, he requires no recommendation from us.

PROFESSOR BUCKLAND, of the Toronto University, whose labors and writings in behalf of Canadian Agriculture are known and appreciated throughout the Province, will contribute to its pages as usual.

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PATTERSON'S CANADIAN REAPER.

WE are now manufacturing at Richmond Hill, C. W., a limited number of Reapers for the next harvest. To those unacquainted with us and the reputation of our Machines, we would say, that we are among the oldest manufactnrers of Reapers in the province. Intending from the commencement to make it a permanent business, and knowing our success depended wholly upon the reputation of our Machines, we were determined that every one manufactured and sold by us should give entire satisfaction. We have been at great pains and expense in procuring the best quality of thoroughly seasoned timber and other materials. Our workmen are the most skilful mechanics that can be obtained, some of them having had much experience in this business, they having worked for several years in the most celebrated establishments in the States. We personally superintend the entire business ourselves, and intend every Machine made shall be perfect in all respects before it is offered for sale. We warrant them to be equal if not superior to any either of Canadian or American manufacture, and among all those sold by us last season, there was not a single Machine that did not give satisfaction.

Without wishing to prejudice any one against those commencing the manufacture of Reapers, we would intimate the necessity for caution in purchasing on mere recommendation a machine that has not been thoroughly tried, and found fully successful in its operations.

Farmers wishing to purchase one of our machines should forward their orders soon, as nearly three-fourths of the number we intend to manufacture are already engaged. To those acquainted with our Reapers, we would say, that we have made some very important improvements since last year, although the price remains the same, and we intend to furnish *a better Reaper for the money than can be obtained elsewhere.*

PATTERSON & BROTHERS.

Richmond Hill, C. W.

THE

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HORTICULTURAL AND AGRICULTURAL CENTRAL CLUB.

SUBJECT—MANURES.

The third regular meeting for discussion of this Club took place on 1st April, Col. Thomson, Vice President, in the chair.

Professor H. Y. Hind, M. A., Trinity College, read the following paper "On the preservation of Farm Yard Manures, with some remarks on the sudden appearance of Rust, Blight, and Mildew, and suggestions as to a remedy."

The variety of new or modified views respecting the relative importance of different kinds of plant food which are periodically presented to the public under the shadow of great and trustworthy names, is a proof that the question is still involved in much obscurity and well deserves the most careful attention and study.

It cannot now be doubted that it would be very unwise to pen our faith exclusively upon the application of any artificial organic manure, it would be equally injudicious to lay too much stress upon the constant but *bare* renewal of the mineral elements of the soil renewed by cropping; and we should not the less fall into error if we were to abjure all kinds of manures and rely altogether upon the exalted physical and chemical properties of the soil, induced by deep spade husbandry and drainage. We must avoid all extremes, and in deciding upon the kind of plant food to be administered, or the mode of administration, we must be guided, firstly, by the sources from which plants derive their food; secondly, by economical considerations, the physical condition of the soil, and the peculiarities of climate.

In this paper I propose to limit myself to a discussion of the sources, preservation and distribution of one kind of plant food which is universally acknowledged to be necessary, and to lie within our immediate reach. Indeed, the majority of scientific and practical farmers believe it to be the most important element of stable and organic manures, (guano, &c., &c.,) and a few, regard it as the main spring of vegetable growth and luxuriance.

Nitrogen, in the free state or in the form of ammonia and nitric acid, has, probably, excited more discussion and led to a larger number of experiments in relation to vegetables than any other element or compound which assists in building up their structure. Its importance cannot be over-estimated, the simple fact that no flesh forming principles and no seeds can be formed by vegetables in the absence of nitrogen is sufficient testimony to the nature of this most inert and tractible element.

How often has the question been asked,—is free nitrogen directly absorbed by vegetables from the atmosphere? And how repeatedly and with what force of illustration and argument has the question been answered in the negative. Latterly the subject has again excited attention, and an able advocate for the direct absorption and assimilation of Nebrague from the atmosphere been found in M. Ville.* It is unnecessary here to refer further to this difficult and unsatisfactory subject; and for present purposes it is sufficient to assume that nitrogen is not directly absorbed from air, but that before entering into plants for assimilation it takes the form of ammonia or nitric acid.

Ammonia we know exists in the atmosphere, probably to the extent of one part in ten million parts on the average. At times the quantity of Ammonia present is much greater than the above ratio, at other periods less. Rain water contains on an average nearly one part of Ammonia to the million, and of nitric acid about five parts to the million.† Dew always contains ammonia, and mists have prevailed so rich in this substance that the water had an alkaline reaction. Barral analyzed the water collected in the rain guage of the observatory atParis. He found that in one year, 10.74 lbs. of ammonia fell with the rain, and 10.7 lbs. of nitric acid. In July he found the amount of the ammonia to be the greatest; in September the amount of nitric acid to be the greatest. The ammonia was least in March and increased gradually to July. In August it diminished suddenly, and continued to diminish until October, attaining its second maximum in February. These observations although very interesting are not satisfactory, because they were made in the neighborhood of a great city. Hence we find that Boussingault discovered much less ammonia in the air far away from towns—a gallon of rain water containing only one twenty-fifth of a grain of ammonia. As a general fact, however, the water collected during fogs was extraordinary rich in Ammonia, containing on an average one third of a grain to the gallon—but an instance has been known—before referred to—of a gallon of water from a fog containing not less than four grains of Ammonia. The constant presence of this substance in the atmosphere is not only now fully established, but its influence upon vegetable growth in this gaseous form is of the highest interest, and possibly, of the highest importance.

The experiments of M. Ville upon the effects of ammonia in air upon vegetation show how rapidly and remarkably its influence is felt. If ammonia be artificially introduced into air in the same proportional average as carbonic acid is found to be constantly present, namely, about one part in 2500 parts of air, its influence soon shows itself upon the leaves, which continually acquire a deeper and deeper tint. The presence of such ammoniacal vapours not only stimulates vegetation, but changes the growth of the plant, and causes the developement and enlargement of particular organs. In prosecuting a series of experiments on the phenomena of vegetation with a view to ascertain whether nitrogen was directly absorbed from the atmosphere and assimilated, M. Boussingault observed the growth of minute green cryptogamia on the outside of the flower pots which had been exposed to the air, but he failed to detect any vegetable growth on those from which fresh air had been carefully excluded. The sudden growth of varieties of fungi during misty weather has often been noticed, and their appearance may be accelerated by the introduction of a small quantity of vapour of ammonia into any confined space where they are observed. I am not aware that any extensive experiments have been made upon the growth of fungi in an atmosphere rich in ammonia, such as certain fogs. I have, however, remarked with surprise their absence in an atmosphere from which ammoniacal vapours were probably abstracted by powdered charcoal, without, however, drawing any conclusions

* Transactions of the Paris Academy of Science.
† Experiments of Dr. Gilbert and Mr. Lawes.

from the observation until attracted by the curious discovery of M. Boussingault, that fogs are eminently rich in ammonia. The presence of a large quantity of this important plant food in certain fogs is not difficult to account for. Not only does the gradually increasing quantity of aqueous vapour in the atmosphere before the positive appearance of mist in any locality, collect and condense rare and widely diffused ammoniacal vapours, but the exhalations from the soil produced by decomposing vegetable matter, are arrested and accumulate. The period of the year when fogs rich in ammonia may be expected depends naturally upon the frequency of the fall of rain—upon the moisture of the atmosphere, and upon the winds. In Canada it appears reasonable to suppose that we may expect to find fogs rich in ammonia during the hot months of July and August, when the rain fall is not so great as in September. During these months mist frequently hang over the fields, particularly in low situations. The exhalation of vapour of water from the leaves of plants being then checked, and their juices partially stagnating in an atmosphere often rich in ammoniacal vapours, all the conditions for the appearance of the fungus called "Rust" on the stems and leaves of the cereals appear to be fulfilled. It is commonly remarked that rust is most prevalent on new land; this is perhaps explained by the large amount of vegetable matter thrown into a state of decomposition by access of air and the consequent production of ammonia. There is no doubt that much of the ammonia thus generated would combine with vegetable acids, and be fixed by clay, &c.; but some portion could not fail to combine with carbonic acid and escape into air in the form of the volatile carbonate, as is observed to a greater degree on manure heaps even where gypsum or other solid fixers of ammonia are employed to avoid it. We must regard new land as a storehouse of ammonia and other plant food, which become liable to volatilize when liberated by too free an exposure to air without proper precautions. If the supposition be correct that 'Rust' is mainly occasioned by the concurrence of mists or fogs in July and August rich in ammonia; and that the active agent in inducing the sudden appearance of that destructive parasite is really ammonial vapours, we have a remedy at hand which promises, when properly and carefully applied, if not entirely to check, at least so far to arrest the growth of the parasite as to claim a general trial, especially as its effects would probably prove equally availing in arresting mildew and blight. What we require is an available absorbent of ammonia and its volatile compounds, not an absorbent which will destroy this valuable plant food, but one which possesses the property of inducing it to assume another form, perhaps equally available as a fertilizer, although of much slower action. Recent observations show that powdered charcoal answers these requirements. Charcoal not only absorbs ammonia to an immense extent, but it also oxidizes it to nitric acid, and thus renders it temperately inert, but not unavailable to future fertilization. Powdered charcoal is distributed with the utmost ease over large areas. Being an extremely light substance and easily reduced to a fine state of division, the least breath of air is sufficient to carry it for hundreds of yards. Any one who tries the experiment of gently shaking a muslin bag, containing coarsely powdered charcoal, in a gentle wind, will find that the operation of sowing, as we may technically express it, a ten acre field, would certainly not cost one-tenth part of the labour of sowing the same field with plaster; and as that operation is not unfrequent in this country, a practical guide is at once furnished of the amount of labour the operation involves. Powdered charcoal thus sown is very uniformly distributed by the least motion of air, and its effects are marvellous. In a stable, for example, strongly smelling of ammonia from fermenting urine, an ounce of powdered charcoal, shaken by means of a muslin bag or any fine network, rapidly and uniformly distributes itself, and instantly absorbs the ammoniacal vapours. A curious instance of the action of this deodorizer occurred at Balaclava during the heat of summer, when the stench was almost intolerable in that painfully celebrated harbour. A ship load of charcoal arrived, packed in bags, and the men who were engaged in transferring the cargo to

the shore were covered with the dust, as was every object in the neighbourhood—the stench which before prevailed, suddenly and completely disappeared.

Nothing is more simple than the manufacture of charcoal—a few billets of wood are to be piled like cordwood, then well covered with sods, with the exception of two orifices, one to admit a little fire, and the other to allow the smoke to escape, until the heap has well taken, and then to be firmly closed for the purpose of allowing slow combustion to go on in the absence of air. When cool the charcoal may be crushed in a stout canvass bag by a lever, not by blows, and when sifted furnishes the required material for sowing.

To return to the subject of ammonia, we may examine its relation to the soil, and acknowledging the well known fact of its constant presence in rain water reasonably infer its accumulation in the soil. Professor Way, indeed, has arrived at the conclusion that rich loamy land of the Tertiary Drift contains ammonia within available depths for vegetables at the rate of one ton per acre. The form in which ammonia is contained in the soil, renders it, in general, useless to vegetables, it may be liberated however by certain processes practicably applicable. Together with potassa, this important plant food is separated by clay from its soluble salts, hence from rain-water, however rich in ammonia This accumulation in a comparatively inert condition is also greatly increased by certain vegetable acids, the result of the partial decomposition of leaves, roots, &c.; during the further decomposition of these bodies soluble salts of ammonia are liberated, hence one advantage of ploughing. But if we are permitted to reason respecting the great operations of nature, guided by the infinitely smaller but not less characteristic results of chemical analysis in the laboratory, we arrive at properties of clay soil, in connection with other bodies, of singular interest and perhaps of equal importance. Ammonia forms with certain constituents of the soil, chemical compounds very sparingly soluble in water (silicate of alumina and ammonia)—one gallon of water dissolves, when pure, about one grain of this compound. Now, although an acre of wheat exhales, during the period of its growth, upwards of 1,000,000 lbs. of this soluble salt of ammonia, yet it is not to be supposed that the quantity derived from this source would serve the exigencies of the plant or materially facilitate its productiveness—if all were absorbed and assimilated, it would certainly assist in the development of the straw and ensure the growth of twenty-five bushels to the acre; but we cannot be permitted to suppose that total absorption, under ordinary circumstances, would take place. Mr. Way, however, has ascertained that water, saturated with carbonic acid, dissolves more than double the quantity of this ammoniacal compound, and further, that the addition of 1.97 per cent. of common salt or about $\frac{2}{3}$ the strength of sea water, dissolves not less than 23 grains per gallon. There is great difficulty in proving the existence of this compound of flint, alumina and ammonia in soils; there is no difficulty whatever in making it in the laboratory, and as all the materials are present in the soil, and as common salt acts in an hitherto unexplained manner upon clay, it is at least desirable that this matter should also be experimentally investigated by the agricultural portion of our club, the more especially as I think that a remarkable field for its elucidation lies before us. We know that many fertile soils in Canada have become what is termed exhausted, and yet upon analysis, these soils yield a very considerable amount of all the materials which plants require for their growth—but at the same time a marked smallness in the quantity of common salt is to be noticed, a very soluble substance, and one which plays an important part in effecting the solubility of certain varieties of plant food. It appears to be desirable that the exhausted flats of the Thames and other localities which have been cropped for 20 to 40 years without manuring, should be tried with common salt; say a dose of three bushels to the acre. I think we should find upon theoretical grounds the application of common salt as a solvent, of considerable value in many parts of Canada, especially in those parts of the country which are evidently of fresh water or lacustrine

origin, and from which this valuable body has been continually washed during ages of rainfall.

We may now pass on to the second form in which nitrogen enters into plants, namely, that of nitric acid. The supposition that nitric acid plays as important a part as ammonia in the nutrition of vegetables is fast growing into a firm belief in the minds of many distinguished agricultural chemists. The theory of the production and preservation of nitric acid is by no means enveloped with so much mystery as that of ammonia. Nitric acid is a constant constituent of the atmosphere, and may be largely produced by electrical agencies, such as flashes of lightning. It is also to a great extent the result of the oxidation of ammonia in various ways. As a general rule it may be stated, that any organic compound containing nitrogen, undergoing the putrefactive fermentation in the absence of lime, potash, &c., gives off its nitrogen in the form of an ammoniacal compound, but in the the presence of lime potash, &c., the nitrogen assumes the form of nitric acid. This is merely one of those numerous and most interesting chemical changes which are induced by the *influence of presence*. Lime, that great antagonist of ammonia, when brought into contact with perfectly fresh urine, determines the conversion of the whole of the compounds containing nitrogen (urea, uric acid,) into nitric acid; but if any decomposition has taken place previous to the application of the lime, all the ammonia produced (carbonate of ammonia from urea), is driven off.

The formation of nitric acid by the influence of charcoal is well worthy of practical study. If we cover the dead body of a dog, a horse, or any other animal with a layer of roughly crushed charcoal some 2 or 3 inches in thickness, not only will the decomposition of the animal matters take place with remarkable rapidity and without any odour, but in the charcoal we shall find the animal constituents in the form of nitric acid, sulphuric acid, and phosphoric acid, the bones alone resisting the rapid process of destruction induced by the charcoal. The nitrogen, the sulphur and the phoshorus of the animal body will be found oxidized to their respective acids, and some of them associated with a limited quantity of base.

And here it may be remarked, that that element of manures which is considered next to nitrogen in value as a plant food, namely, phosphorus, is not generally recognized as possessing important fertilizing properties in the absence of nitrogen compounds. In other words, *the presence of ammonia or nitric acid is necessary*, in order that the phosphates may acquire their *proper value as plant food.*

Having thus briefly adverted to the sources of the most important nitrogen food of plants, ammonia and nitric acid, it only remains to consider the method of their preservation and distribution. It is exceedingly necessary in Canadian husbandry to keep in view the second axiom laid down at the commencement of this paper,—that we should be guided by economical considerations in the preservation and distribution of our plant food,—we may therefore pass over all so called special manures with the exception of common salt, gypsum, and spent wood ashes, and devote exclusive attention to what every farmer has the opportunity of accumulating and preserving, namely, the valuable portions of Farm Yard Manure.

No single fact in agricultural science has been so exclusively proved as that the urine of animals forms the richest and most valuable portion of their excrements, consequently of farm yard manure. I think that in the present condition of husbandry in this country we are justified in assuming that the forcing elements of farm-yard manure, such as the nitrogen compounds, are without any question or comparison by far the most valuable. Our soils still contain abundance of phosporic acid, sulpuhric acid and potash, in a condition capable of being dissolved by water, without any artificial application beyond the mineral constituents of farm yard manure,—and if we look well to that grand element of fertility, and the preservation of its most valuable but

volatile constituents, we shall exhibit the truest economy and arrive at the most profitable results.

In preserving and distributing farm-yard manure, we cannot advocate, for obvious reasons, (*climate*, seeds of weeds, &c.) the immediate ploughing in of the fresh manure, as now so warmly recommended in Europe, because in general, however clearly the advantage of these methods might appear, yet they would scarcely be economically practicable among farmers with us. I think we must look to the application of those substances easily accessible, and involving no money outlay, which possess the property of arresting volatile exhalations, and retaining in a light and available form the element. Two of these are easily procured on every farm; the third is not expensive, when its powerful effects are duly considered. Partially burnt clay and crushed charcoal furnish us with the materials we are in search of. A manure heap sheltered from the sun and rain, and having its drainings together with those of the stables, cow-houses, &c., well-collected into a simple, inexpensive, but properly closed tank, may remain continually accumulating in dimensions, quantity, and valuable properties, if time after time thin layers of partially burnt (black burnt) clay and charcoal are strewed over it and in the tank. Partially burnt clay has the property of fixing ammonia to a remarkable extent, and is easily prepared during the process of making charcoal. Such substances as gypsum, sulphate of iron, sulphuric acid, &c., so generally and advantageously used in Europe, and to far less extent on this continent, are not specially referred to here, as it seems essential in our farming practice to make the farm produce as much as possible of every item required. The third article to which I am tempted to call your favourable attention, for reasons before mentioned, is common salt. I think that a limited application of this substance on our lacustrine drifts, simultaneously with farm-yard manure, would be found eminently serviceable, and certainly worthy of trial.

[An interesting discussion followed on the subject of liquid manure, &c., a portion of which we may be able to give in our next issue. Ed.]

Kicking Colts.—Mr. W. L. F. Jones, of Asbury, gives us the following mode of breaking colts of the bad habit of kicking:—Whenever a colt kicks he takes hold of the head and neck gently, by clapping his arm around and holding on to the nose until he ceases to struggle, patting him occasionally and speaking kind words to him. By doing this a few times, he says the worst case can be cured.—*Prairie Farmer.*

Mice last Winter.—The R. N. *Yorker* says there has been a general destruction of trees during the last winter throughout the Western States. Many spirited gentlemen determined not to give up the experiment, have replaced their lost trees, still hopeful of their eventual success. The mice have destroyed thousands of apple trees, as wallets, cherry, pear, and peach trees, to the great disappointment of those who relied on their trees for spring sales.

Rheumatism—A Remedy.—The *New England Farmer* recommends the following recipe as a simple and invaluable remedy for rheumatism:—"Take a half pint of spirits of turpentine, to which add half an ounce of camphor; let it stand till the camphor is dissolved, then rub it on the part affected, and it will never fail of removing the complaint. Flannels should be applied after the part is well fomented with turpentine. Repeat the application morning and evening. It is said to be equally available for burns, scalds, bruises and sprains, never failing of success."

Strychnia—Lard an Antidote.—The *American Journal of Medical Science* says tha lard is an antidote to strychnia. It was discovered in an attempt to poison a dog, by placing the strychnia upon meat. The meat was near a jar of refuse lard, and after the meat had been eaten, the dog devoured the lard, and to the surprise of the person watching the effect of the poison, it failed of producing any effect, although one grain had been swallowed. The experiment was repeated nine different times with like results and eleven times without the lard, in every instance proving fatal.

GRAIN MARKET AND HARVEST PROSPECTS IN ENGLAND.

We have not been much in the habit of advising our readers as to holding or selling their produce. It would be a hazardous duty to undertake, and its performance, no doubt, would often be as unsatisfactory to us as to them. We prefer to let our readers judge for themselves on such subjects. At the same time, we can see no risk or impropriety in placing before them such facts and statements as may enable them to form a better opinion of the future than they could do without them.

A great deal has been said in the newspapers about the fall of prices as a consequence of peace, and farmers have been advised to sell their wheat at any price above a *dollar*, rather than keep it longer. But, so far, these predictions have not been borne out entirely by events. Prices have fallen, it is true; but the most recent advices do not warrant the belief, that a much greater reduction will take place before harvest. We subjoin the "Agricultural Report" of the *Mark Lane Express* of 5th May, on the markets and harvest prospects of Great Britain. The *Express* is the most reliable newspaper authority from which we can quote :—

APRIL.

The long continuance of cold easterly winds has had the effect of keeping vegetation in check in all parts of the country; and the want of the usual supply of moisture at this period of the year, has been productive of some inconvenience to our graziers, whose pastures are unusually bare of grass. Nevertheless, our accounts of the general appearance of the wheat plant are very favorable, notwithstanding that it has made comparatively little progress. Barleys, too, though not much above ground, have required moisture; whilst oats, beans and peas have been greatly in want of rain. The backward state of the spring has compelled most of the leading stockmasters to purchase large quantities of hay—which is daily becoming very scarce—at a heavy outlay of capital; indeed, in some quarters nearly, or quite, the whole of the winter's supply of turnips, &c., is now exhausted. Both beasts and sheep, however, have been remarkably healthy, and scarcely any losses have resulted from disease. We find, however, that the lambing season has not turned out so favourable as in some previous years—numerous losses having been sustained in the northern districts.

The close of warlike operations has had its accustomed influence upon the corn trade. Buyers, under the impression that "peace signifies plenty," and with the growing conviction that we shall receive immense quantities of food from the Baltic and Black Seas, as well as the Sea of Azoff, have operated with great caution; and not a few of our farmers have evinced much anxiety to become sellers even at reduced rates. The trade has therefore, been in an inactive state, and prices have had a downward tendency. Now, to us, it is a matter of great doubt whether we shall receive anything like the quantity of corn from Russia this year that many parties seem to anticipate; and this opinion is, in a great measure, confirmed by numerous advices from merchants long resident in the northern and southern ports. They intimate that the quantity of grain, &c., at the various seaports ready for shipment, is unusually small; and they contend that, owing to the unusually severe sacrifice of life during the last two years, and to the immense numbers of people drawn from the land for military purposes, it will be impossible to bring down from the interior very large supplies of grain during the next three or four months. But assuming that we shall receive 1,000,000 qrs. of wheat from all Russian ports this year, the practical man must at once see that that amount of supply—when our wants are fairly considered—cannot have a very depressing influence upon value. We are not arguing in favour of any permanent advance in the quotations, because we consider such an event most unlikely; but, at the same time, our impression is that we shall not import more corn than can be conveniently consumed. In confirmation of our views in reference to the export of food from Russia, we may quote the following from St. Petersburg:—"We are informed that the conclusion of the war was followed in London by a rapid fall in the price of Russian commodities, partly provoked by the notion that Russia has accumulated quantities of merchandise of all sorts during the war, and that it must now dispose of them at a low figure. In calculating thus, the English merchants

forget that throughout the war Russian exports have continued by way of land, and that thus we shall not be compelled to sell the old stocks cheaply. The supposition of a great quantity of Russian merchandise prepared in anticipation is equally erroneous. Russia cannot at this moment export any other grain than that already found in our sea-ports, or in their neighbourhood, since there would not be time to bring anything from the interior for the navigation of this year. The corn in store in the southern ports will have probably been already purchased on the account of French merchants. It is only, then, between the autumn and next spring that Great Britain can hope to find corn cheaper in Russia than in America." We must, as a matter of course, receive the above with some reserve; but, at the same time, it is evident that from the crippled state of the resources of Russia, a very large outflow of grain cannot be expected; hence, it follows that a low range in the value of English produce is an event not likely to happen this year.

The enormous produce of the potato crop in all parts of the United Kingdom last year, and the fine condition in which it was secured for winter use, are now more and more apparent. Even up to the present time, immense quantities are coming forward perfectly sound and fit for use. This important feature has no doubt greatly interfered with the consumption of the better kinds of food, and assisted to keep prices in check. The present prices in the London market vary from 35s. to 95s. per ton.

In Ireland and Scotland agricultural operations are very forward; indeed, they have experienced no interruption during the whole of the month. Shipments of grain to England have been small, and prices almost generally have been drooping.

How to Start Melons.—A correspondent of the *Country Gentleman* gives the following plan for starting melons:—

"My plan for obtaining early plants is, to construct a rude basket or wicker-work of willow or other twigs, something like a bird's nest, without the inside filling up. Make a hole in the soil of the hot-bed of sufficient size to admit the basket, fill up, plant and cover the seeds, rake and smooth the surface. When the weather is warm enough, and sufficiently settled to admit of outside planting, I make my hills, and lift the little baskets containing the plants, and carefully remove them to their places, where they quickly strike through the open net work of the basket into mother earth, and soon repay all trouble for giving them 'a start in the world.'"

Soil for Fruit Trees.—Fine fruit can only be grown upon a soil naturally or artificially dry and firm. A wet soil, or a very loose peaty one, never produces fine fruit. Sandy soils, gravelly soils or clayey soils, as well as what are called loamy soils, can all be made to grow fine fruit, if properly cultivated, provided the subsoil is porous enough to permit the water to escape rapidly downwards a sufficient depth to allow the roots of trees at least three feet of soil which is never filled with stagnant moisture—and the greater the depth of perfectly drained soil, the greater the certainty of success.

Agricultural Experiment.—A curious circumstance connected with the growth of clover is, that by cutting the clover twice and removing all the hay, a much better wheat crop is obtained than by feeding it off by sheep, even if some artificial food is used. This is owing to the fact that the growth of roots of clover in the land is in exact proportion to the growth of the leaves in the air. Each leaflet that shoots upward sends a radicle of root downward. *If the leaf be bitten off or destroyed, its rudicle ceases to grow.* It therefore follows that grazing clover by sheep materially diminishes the amount of vegetable matter accumulated in the soil by the roots, and consequently the produce of the succeeding crop.

The above is sustained by the following:—

"A friend of mine in Northamptonshire had a field of clover; it was divided into two portions, both were cut at midsummer, and one part was then fed off with sheep, and the other left to grow till September, when it was again cut and the hay removed. Equal portions of the several pieces were then compared. Where the clover had been cut once and fed off, he got 35 cwt. of clover roots per acre. Where he cut twice, he got 75 cwt., there been a difference of two tons of vegetable matter per acre."

Vegetable Seasoners.—Parsley, celery, thyme, sage, onions, garlic, and other seasoners, should not be put into soups or stews until the soup is nearly done; chop fine, and put in five minutes before the soup is taken from the fire.

SKIN DISEASES OF DOMESTICATED ANIMALS.

This is a topic demanding the earnest attention of stock-breeders and farmers generally. Skin diseases, produced by insects, are by no means uncommon, and seriously affect the breeding and feeding qualities of animals. Till recently, but little scientific progress had been made in regard to the natural history and treatment of these parasites. Professor Simonds, the Veterinary Inspector of the Royal English Agricultural Society, recently delivered a Lecture before the Council on this subject, from which the following statements are gleaned:—

All domesticated animals are more or less affected by peculiar parasitical insects, which may be divided into three great classes—1. Insects attacking the external parts of the body, on which they pass through the whole period of their existence, as the *acari*, producing scab, mangi, &c. 2. Insects which pass their larva condition only on the skin, as a temporary *nidus*, from which they escape as flies on assuming their winged condition. 3. Insects, most destructive to animal life, lodged in the internal organs and cavities of the body. Some confusion had arisen from giving different names in case of lower animals to diseases identical in their character; the mange and scab in the horse and sheep being analogous to the itch or scabies in the human subject. It would be more simple to include all such diseases under the general term "scabies."

It is well known, both in Canada and Europe, that the scab often leads to serious losses to flockmasters, by its tendency to deteriorate the wool and the general condition of the animal. Its cause was not satisfactorily determined, till a German physiologist, who clearly proved the wide distribution of acari or mites, in dirt or filth, sugar, cheese, flour, and most vegetable substances. He found that the male and female acarus of the horse and of the sheep possessed well-defined characters in the case of each of those animals, the former being the cause of the mange, and the latter of the scab. These mites have the power of travelling from one animal to another; and the scab disease of sheep will sometimes affect the whole flock, if not arrested. From carefully conducted experiments, Professor Simonds concludes that the mites belonging to one class of animals could not engender the same disease on the bodies of another class; that the mite which produced scab on sheep was not capable of producing mange on the horse or dog. This conclusion, however, from recent experiments made in Germany, may be regarded as somewhat doubtful.

The deposition of the acari on the skin of sheep and the development of the scab disease, may be traced as follows:—"First, a slight redness comes on the skin, albuminous fluid is exuded, which mats the adjoining wool. In a few days, definite pain is felt by the animal, which violently attempts to scratch itself by rubbing the part against any resisting object. The irritation extends to ten or twelve inches. The disease makes rapid progress. Acari had travelled over other parts of the body. In sixteen days, fifty or sixty eggs of the acarus were found at the base of the wool. Large thickened crusts of a white appearance were formed. The health of the animal and its skin became generally affected. Large scales or scabs ensued, which, on

being raised, a great number of acari could be detected. Inflammation ensued on the skin. The itch in the human subject arose from the same cause; the acarus burrowed beneath the scale of the epidermis, or outer skin. This affection was known to be more communicable when the person was warm in bed, the acari then coming freely out and extending their operations. The itch-mite insinuated itself *within* the skin, while the mites of the horse and sheep made their attacks *upon* the skin." These minute creatures are wonderfully endued with a power of extracting the juices of the skin by their suctorial discs; of adhering to the wool or hair by their hooklets; and their trumpet-shapen appendages enable them to hold themselves securely by valves to flat surfaces. The female mite is larger than the male, and is adapted to propagation, while the male is peculiarly formed for sucking the skin; the disease is the result of their joint action. Professor Simonds had found these scab-mites alive and vigorous fourteen days after they had been removed from the backs of sheep; and he considers that there is great risk to any fresh healthy flock occupying the ground from which infected sheep had been removed less than two or three weeks.

The cure of scab is not generally a simple process. The cause must be thoroughly removed, viz., the destruction not only of the mites, but their *eggs* also. Many of the proposed remedies destroy the insects, but not the eggs, which in a few days may turn out a fresh swarm of living creatures. Dippings, ointments, &c., occasionally, all failed, by not reaching the eggs. Arsenical applications are more potent; but from their virulent poisonous nature, require the greatest care in applying. The preferable form of such solution is that of arseniate of potash, blended with vegetable infusions, such as those of foxglove, henbane, dock-roots, &c. Two ounces of common arsenic and two ounces of carbonate of lime, boiled together in a quart of water, until dissolved, when a further quantity of water may be added. To this gallon of solution a gallon of vegetable infusion may be added, made by pouring a gallon of boiling water over four ounces of foxglove leaves, and allowing the infusion to remain till cold, when it may be poured off. Half a pint of it, at intervals of a few days, should be sprinkled (from a bottle, through a quill in the cork) on the skin at the back and sides of the sheep. Two or three dressings will generally be found sufficient to cure the most inveterate cases of scab.

Parasitical insects often travel to other animals; and without producing the identical diseases as they do on the animals to which they naturally belong, nevertheless they frequently occasion a great amount of local irritation of an annoying character on the skin. Poultry sometimes swarm with insects, especially lice and mites, which often travel to other animals. Horses may appear to have the mange, while the effect is simply the inflammation produced by poultry ticks, and admit of easy cure by means of oil impregnated with sulphur.

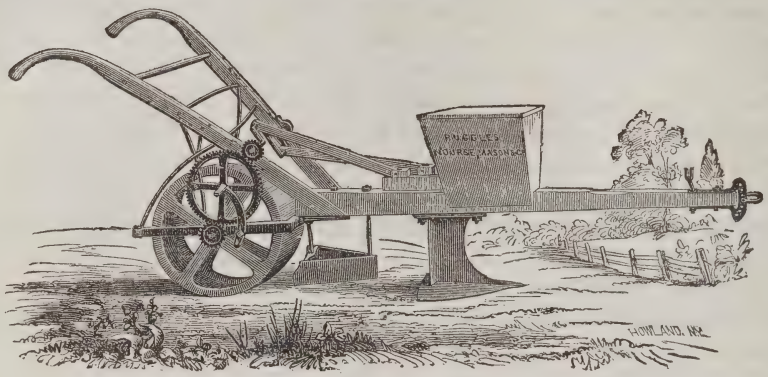
The *warbles* belong to a class of parasitical insects, which pass only one period of their existence in the skin of animals, the period of their larvæ or grub state, before they assume their winged form as flies. Small tumours are commonly seen on the backs of the farmer's best-doing stock, each containing a large maggot, grub, or bot, the larvæ state of the gad or breeze fly. Some species of this fly deposit their eggs in the nostrils of sheep and in the hair and skin of horses, when they are hatched;

being licked up by the horse, and passing into the stomach, and afterwards through the intestinea as bots. The cattle gad-fly deposits its very minute egg on the skin of the animal, which, being hatched by heat, passes beneath the scarf skin, and lays secure, feding on the unctuous secretions of that integument. It afterwards burrows into the skin, and insinuates itself below it, and thus remains secure all winter. In spring diffused swellings are observed on the backs of cattle, which give pain on pressure, in consequence of inflammation. The grub lies in its nidus, or nest, within the true skin, till the approach of summer, when its white colour becomes dark, and it makes its way out of its retreat. On the ground it soon assumes the chrysalis state, escapes from its shell as a gad-fly, lays its eggs, and dies. The eggs again produce grubs, and the same wonderful cycle of changes succeeds. It is the same with the bots of the horse. When they lost at maturity their power of attaching themselves to the stomach, they slipped their holdings, and passed out of the stomach through the intestines to the ground, when they assumed the chrysalis state and became flies. The egg of the sheep gad-fly was deposited about the middle or latter end of summer. The sheep were then herded together with their heads down, and violently stamping with their feet. The fly at length deposited its egg in their nostrils, and the hatched grub penetrated through the intermediate cavities to the frontal sinuses, when a plate of bone prevented its getting into the brain. Various affections in the brain of sheep, such as vertigo, gig, giddy, turnsick, goggles, &c., have been erroneously ascribed to the gad-fly, but they have a totally different origin, viz., arising from the formation of little sacs or bladders, containing hydatids. The mange in dogs is owing to the dog-flea; an insect that was the fruitful source of diseased action of the animal's skin, when it generated and passed through all its various gradations of existence.

The prevention of contagion among animals may be summed up in two words—*improved management.* Cleanliness, ventilation, exercise, nutritious diet, and temperance, have effected the most beneficial changes on the human race, within a comparatively short period of time; and it is but reasonable to conclude that similar causes will produce similar results among our domesticated animals. We have yet much to learn and do in Canada in relation to these important matters.

Carrots.—What would be the result if every farmer in the United States should raise one acre of carrots? An acre will produce from 400 to 1,400 bushels, and when mixed with grain, is of equal value per bushel for feed of all kinds of stock, and for milch cows still more. Another advantage of the crop is that it is equal to a good dressing of manure for the succeeding crop of any other farm product. Do, we conjure you, plant carrots.—*Tribune.*

The Use of Oil.—In this country, children are "perpetually watered," as though they were amphibious animals. In the East Indies, children are rarely washed with water: but they are oiled every day. A child's head can be kept much cleaner if oiled, than without it, and many young people with hectic cheeks would probably never know the last days of consumption, if their parents would insist on having the chests, back and limbs anointed with sweet oil two or three times a week. The Hebrew physicians seem to have considered oil as more efficacious than any other remedy. The sick were always anointed with oil, as the most wonderful means that was known of checking disease.—*Christian Freeman.*



CORN PLANTER.

The above is a representation of Bachelder's Corn Planter—an implement more used in the Western and Southern States than it is likely to be in Canada. We present the cut and description, however, in the hope that some of our own mechanics may get up a cheap modification of it suitable to this country. Many farmers in the western part of the Province grow frequently 5 or 6 acres of corn, and in such cases a "planter" would be serviceable. This is pronounced one of the best machines yet invented for planting corn. The seed is put into the hopper above the beam, and as the horse moves along, the share below opens the furrow; the corn is then dropped by arms moving horizontally. These arms have holes in them of a proper size to receive any required number of grains, and as they pass in and out of the hopper, the holes are sure to be filled with the seed, which as surely drops into a tube conducting it to the bottom of the drill made by the share, which is so formed that it passes under the surface at any required depth, and deposits the grain without turning over the earth. A triangular iron follows to remove all lumps and stones, and a roller to compress the earth over the seed. The dropping of the seed is always visible to the operator, and thus ensures his work being perfectly well done. The arms are made to drop the corn nearer or farther apart by different sized cog-wheels fastened on the crank, moving the arms quicker or slower as required; five changes can be made. Those usually made drop from two feet to four feet apart, as wished. The machine requires a horse to draw it, and with a person to tend it and drive, will plant 12 to 14 acres per day, according to the width of the rows apart.

Every-Day Facts in Science.—If a tallow candle be placed in a gun and shot at a door, it will go through without sustaining any injury; and if a musket ball be fired into water, it will not only rebound, but be flattened, as if fired against a hard substance. A musket ball may be fired through a pane of glass, making the hole the size of the ball, without cracking the glass; if the glass be suspended by a thread, it will not even vibrate. In the Arctic regions, when the thermometer is below zero, persons can converse more than a mile distant. Dr. Jamieson asserts that he heard every word of a sermon more than a mile distant.

REV. T. SCHRIEBER ON FENCING.

LIVE FENCE.—COST PER ROD.	s.	d.
3 Posts, at 6d	1	6
33 feet, B.M., of Lumber, at $14 per 1000 feet	2	5½
¼ lb. of Nails, at 7½d. ℔ lb		2
68 sets of Quick, at 8d. ℔ 100		5¾
3 Posts set in ground at 6d. each	1	6
Forming ditches, setting quick, &c	1	0
Keeping Fence clear of Weeds, 3d. ℔ year		3
	7	4¼

COST OF ENCLOSING A SQUARE TEN ACRE FIELD.

Total length, 2,640 feet, or 160 rods, at 7s. 4¼d. ℔ rod	58	16	8

ENCLOSING AND FENCING OFF INTO TEN ACRE FIELDS A TWO HUNDRED ACRE FARM IN BREADTH 1,320 FEET.

Total length, 21,120 feet, or 1,269 rods at 7s. 4¼d. ℔ rod	517	0	7¼

The Homewood, March 12th, 1856.

My Dear Sir,—Assuming that the native Thorn of Canada is best adapted for a live fence, and that its characteristics are nearly the same as the English Thorn, I take the liberty of sending as above the cost of its growth and protection for ten years, at the end of which period it will become such a fence as will last for ages, and be impervious to cattle, sheep, and swine; the Thorn when planted should be cut down to the third eye, the fibres of the roots also shortened, and planted as in the annexed sketch; in the third year after planting it should be cut down close to the ground: with proper attention in cultivation and in keeping it *thoroughly* free from weeds it may be reared up in the seven following years to be a fence as represented in the next sheet, four feet high, *wide at the base and tapering to the top.* It may be observed, the Thorn requires free circulation of air and will not thrive in the shade or under the shelter of trees. The cost of rough protecting fences on each side is inferred from the expense incidental to fences put to keep cattle and sheep off a line of railway in this Province. I am, dear Sir,

Yours faithfully, Thomas Schrieber.

Wm. McDougall, Esq., Yonge Street.

We regret that we are unable to present an engraving of the sketch which accompanied the above. It is the less necessary from the fact that most of those who are likely to undertake the growing of live fences will have had a knowledge of the business, or will avail themselves of the practical skill of some one who has. The Rev. Mr. Schrieber's sketch will be sufficiently understood by such parties when we state, that a cross section of the fence shows two ditches, one on each side, 1½ feet wide at the surface line, and 9 inches deep. The bank between the ditches is 2 feet at the surface line, and the posts of the side fences are set about 9 inches from the outside of the ditch. The Rev. gentleman thinks two boards 6 inches wide will be sufficient for each side fence.

Boil Your Molasses.—When molasses is used in cooking, it is a very great improvement to boil and skim it before you use it. It takes out the raw taste, and makes it almost as good as sugar. Where molasses is much used for cooking, it is well to prepare one or two gallons in this way at a time.

THORN LOCUST FOR FENCES—FIELD MICE—VEGETABLE CUTTER.

St. Catherines, April 22nd, 1856.

My Dear Sir,—In looking over the proceedings of the Agricultural and Horticultural Central Club in your April No., I was very much pleased with the discussion on the subject of fencing. It is a subject that engaged my attention some years ago, seeing that the timber in the old settled parts of the Province was fast wasting away, and that in a few years something else must take the place of zig-zag fences now in generul use. For seventeen years I held the office of Treasurer of the Niagara District Agricultural Society, and during that time the subject of fencing was frequently brought forward; but no one could give advice as to which was the best course to adopt. In 1837, I made up my mind to try the native Thorn, and had half-a-bushel of the haws gathered, and directed my man to bury them in the ground. I believe he did so; but soon after the Rebellion broke out, I directed him one day to take a load of wood to Clothing Works I owned in St. Catherines, he got tipsy, and on his way home the horses ran away, breaking the waggon, which was left in the woods; the horses and part of the harness reached home, but my man never made his appearance afterwards. So much for my first attempt to raise a thorn hedge. For some years after this I had a good deal to attend to, seldom being at home. In 1849, hearing so much about the Thorn Locust for a hedge, I thought I would make a trial, and got a number of the sets for that purpose, and began by drawing a line straight the length of the field; I then cut sods to fit, and set them edgeways along the line, the grass side outwards; then I took earth that was under the sod, and put behind till level with the top of the sod, the base being about three feet, the ditch about the same width at the top. I then put the sets six inches apart, horizontally, on the top of the sods and earth, the tops outward; I then laid on some ground on the roots, then another tier of sods, filling up behind with earth, and so on, till raised about two feet from the surface on the road-side. I made a straight rail fence for the protection of the plants.

All the plants started and grew well, the grass also grew, but was kept down by weeding twice. The next year the plants started handsomely, and had a fine healthy appearance in the Fall.

I now began to think I would succeed in my endeavours to have a hedge that would keep out two-legged animals as well as four-legged. I can assure you I began to be proud of my work, knowing that if such a hedge could be raised without a heavy outlay, it would be a great advantage to the country. In the spring of the third year, the hedge looked very healthy. This year I would have trimmed, but could not find suitable shears. The winter following, the *mice* girdled a number of the young shoots, and every succeeding year, I am sorry to say, less or more have been destroyed. I got a bill-hook made, and kept lopping down the branches, and filling up the spaces where the mice had destroyed. Last Fall, the hedge looked so formidable, that I made up my mind it wanted no further protection, and in the spring (1856) I would take away the fence I had made for that purpose. When an individual undertakes something that he thinks will not only benefit himself but his

fellow-man, and has for years experienced much anxiety of mind for the attainment of his object, and when he thinks his efforts have been crowned with success, what must be his feelings to find that all this anxiety and labour have proved abortive? I am just in that situation; for a number of years I have been watching with intense anxiety the progress of my hedge, and believed I had attained the object of raising a good fence; but great was my surprise and mortification to find, when the snow had receded below the hedge, that not a single bush had been left unscathed—every one was girdled from one to two feet from the roots upward! In my opinion, this has settled the raising of hedges for fences in Canada, unless material can be had, that mice will not cut or girdle, and I am not aware of any plant of that description.

I was much pleased with some remarks made by the Rev. Mr. Schreiber, as well as the very excellent observations of others; but as to killing mice with *nux vomica* to the extent that would be required to protect hedges, if generally grown for fencing, I am somewhat incredulous. If the rev. gentleman had stated how much per rod of fence would be required, and how it should be applied, and how much the cost, it would have been more satisfactory to me. The past (in this part of the country) has been the most remarkable winter as regards the number of mice over the land, that the oldest inhabitants can remember; indeed they never saw anything to be compared with them for numbers. I planted an orchard of apple trees a few years ago, 150 in number, and about one-third are destroyed. If the Rev. gentleman's recommendation for their destruction should prove effectual (unless the cost would be greater than the profit), he will deserve the thanks of the whole country for such important information. Were it not for these destructive animals, mice, I can see no difficulty, with proper care for a few years, in raising the Thorn Locust. They will become a good hedge in seven years.

Your plan of planting posts, and back furrowing to them till the ground is raised eighteen inches, is a good one; but as the bank to the posts is a regular ascent, you would require a higher fence than would be necessary on the plan I adopted with my fence. Cattle can go close to your fence; therefore you will require a higher one to keep them out, than if they were three or four feet from it, and had to jump over the ditch. To keep out pigs, your boards or rails require to be closer, as those animals could go close to your fence; they could not get within three feet of mine without climbing. My ditch has an excellent effect on the field adjoining it. I can plough that field generally a week or ten days earlier than I did before I made it. This shows the great advantage over other modes of fencing for draining the land, which, as you justly argue, is a very great object. Independent of fencing, those ditches would pay well for the making. The plan I adopted, will cost something more, but I think it has advantages. A man understanding the use of the spade, will throw up several rods of such ditch as mine in a day.

I have not written this for publication; but having, for a number of years, taken a lively interest in the welfare of Canadian agriculture (and I am sure I shall ever retain that interest for the welfare and happiness of its people), and having always advocated live fences from material best adapted to the country, and seeing the discussion that took place at the Club on that important subject, I could not refrain

from giving you a little of my experience, and if you think you can extract anything from it that will be of use to the public, you are at liberty to do so.

In your March No., enquiry is made respecting a good kind of *Vegetable Cutter;* and for the information of those who wish to purchase a good and substantial article, I think the one I am about speaking of, is all that could reasonably be required. I bought it last winter; it was made at Rochester, N.Y.; price there $12, charges $4, making the cost $16. I was not aware at the time of purchase, that they were made in Canada; if I had been, I would have given the preference to those of Canadian manufacture, not only to encourage home manufactures, but on the score of economy. The Cut, in your February No., is an exact representation of my Cutter, and I consider it an excellent machine for the purpose. It cuts fast and fine enough for any kind of stock.

Having, I fear, already trespassed too much, I must come to a close.—I am, my dear Sir, yours very sincerely,

JOHN GIBSON.

William McDougall, Esq.

REMARKS.—We have no hesitation in publishing Mr. Gibson's interesting communication, even though it was not written for publication. We feel satisfied that we could not devote the space it occupies to a more important subject, or one that will be more generally interesting to our readers. An efficient, durable, inexpensive system of fencing, generally available, is the great desideratum of Canadian agriculture. The ravages of the field mouse during the last winter have almost destroyed the hopes of those who have attempted Thorn fences in Canada. We trust, however, that some remedy will be found against this pest, either by such means as Mr. Schrieber has suggested, or by the use of a hedge plant not subject to its attacks. It is said that the Buck-thorn is never injured by mice, and that it makes an excellent hedge. Let Mr. Gibson not despair; one trial and one failure have not "settled the question." The experiments, which, we presume, will be undertaken by the Board of Agriculture, will no doubt develope some facts, that will help to guide the intelligent farmer in his efforts to obtain a good fence.

Whether *nux vomica* is an efficient, and, at the same time, a safe antidote for mice, may be doubted. It must not be forgotten that it is a *deadly* poison, and if by any chance the small domestic animals, or children, should pick it up, death would be the consequence. Great caution will be necessary in trying experiments. A well-known remedy is the *Cat,* and if administered in sufficient doses *on an empty stomach,* will do much in the way of cure.

Mr. Gibson's objections to the *banked* fence recommended by the writer in his remarks before the Club, are perhaps well-founded; but the plan we intended to describe presents this difficulty to cattle—their hind feet will be in the ditch when near enough to attempt a leap, and consequently the depth of the ditch is so much added to the height of the fence. If the ditch is made so near the fence that a horse or cow could approach near enough to jump from the level ground, then Mr. G.'s remarks would apply. But this should be guarded against. We are now making a fence on this plan, three boards high, with a bank from twelve to eighteen inches above the surface line, and a ditch extending upwards of four feet from the fence. No law-abiding animal would venture to leap it, and disorderly ones are not allowed to make the attempt. Bad fences make "breechy" cattle; if not *trained* to evil ways, a fence considerably less than *ten* feet high will answer all needful purposes.

FENCES—THE "NATIVE THORN."

Arley Lodge, 26th April, 1856.

Dear Sir,—In the last number of the "*Canadian Agriculturist*" you have treated your subscribers with a very interesting Report upon the subject of "Fences," as it relates to the Cost, Variety, and Kind, best adapted to suit the climate and different localities in Canada—embracing economy, durability, and appearance. It seems the opinions and communications generally delivered at the meeting of the members of the Society in Toronto, are unfavorable to the continuance of the culture of the "English Hawthorn," as a fence calculated to answer the requirements of the Province for the reasons then assigned.

Mr. Leslie's practical skill and knowledge of the nature and treatment of "Hedge Plants" entitles any opinion or suggestion coming from him to respect and attention, and particularly so when "Live Fences" is the subject under consideration. Impressed with that opinion, I am once more tempted to commit myself to paper with the view of cautioning the farmer against the introduction of any plant whatever upon an extensive scale without first obtaining undoubted proofs of its general fitness for the purpose intended. That is, possessing sufficient hardness to withstand the rigor of the winters—free from the ravages of insects—of vigorous growth—power of resisting cattle—durability and cheapness. These are properties essential to secure a successful issue, and to reward the farmer for his labour. And so far as my own limited experience permits me to form an opinion, I esteem the "Native Thorn of the Country" incomparably the best. I have not yet met with any other plant that possesses so many of the above enumerated good properties and so free from the objectionable ones. Amongst other plants noticed by Mr. Leslie, the "Buckthorn" is expressly mentioned as a hardy and vigorous plant, capable of resisting the severity of winter, and being free from the destructive attacks of insects. These are valuable qualities, and my own attention had been previously drawn to this plant to ascertain its character, and to that end, when in England, in 1854, I made enquiry respecting its fitness for fences at reliable sources, with the intention of importing either the berries or seedlings of the plant in quantity for future use, had the result of my inquiries answered my expectations. All admitted the properties ascribed to the plant by Mr. Leslie, but, in addition, mentioned the very objectionable one of throwing out suckers profusely, which, if not watched and eradicated annually, would in a few years greatly encroach upon the land. For that reason I abandoned my intention of trying the "Buckthorn" for fences. The same objection, I apprehend, also attaches to the "Honey Locust." Having thus drawn the attention of Mr. Leslie and other qualified gentlemen to the subject, the opportunity is afforded of confirming or refuting the statement I have made as experience might warrant. The only object I have had in view in noticing so important an interest as "What is to constitute the future field fences of Western Canada?" is to elicit truth, and to obtain the most reliable information as to the best adapted plant for that purpose, before mischief on an extended scale is committed. If, upon the introduction of a new principle of fencing, we commence the work by selecting a plant possessing the advantages and free from the objections pointed out, a good work will have been performed, much discouragement removed, and painful disappointment, cost, and labour avoided by the farmer. No man who wishes well to the undertaking should take offence, when none is intended, at finding a favorite and long cherished theory of his own assailed and damaged, when temperately conducted and for a worthy purpose. And whether well qualified or not to convey additional information to that already acquired, he still merits applause who frankly and faithfully volunteers to the public the extent of his own experiences. On that principle Mr. Leslie merits the thanks of the public in directing attention to the eligibility of cedar, hemlock, spruce, and other kinds of evergreens, for fence purposes. Any thing retaining its verdant character throughout a dreary winter is valuable, independent of its usefulness, as a pleasing reminiscence of summer, and a graceful ornament at all seasons.

I greatly approve of Col. Mark's suggestion, that Agricultural Societies should offer a premium for the best specimens of well trained Live Fences, for field purposes—not ornamental. The effort to grow them is deserving of every encouragement, and as a prospective benefit to the Province, of the utmost consequence, and well merits the future consideration of the Club.

The Rev. Mr. Schrieber's assertion, that to "grow a hedge is the simplest of all simple things," may apply with some truth to England, where the climate is favorable to the growth of the quickset, labor cheap, and the cost of the plant a mere trifle; but to look for the same result in Canada, in the absence of like advantages, would only lead to disappointment. Instead of its being a simple operation, it will be found a most arduous one, requiring much outlay, constant attention, and unyielding perseverance, to succeed in growing a good hedge. During a long and inclement winter, no outdoor work or hedge dressing can be performed (as in England, the season there particularly devoted to that duty) succeeded by a dry and scorching summer, trying the tender and recently planted quickset to the utmost. The time, too, in Canada, when the hedge most requires attention is the very season when the farmer can least spare time and labor to devote to it. Preparing the land to receive grain and other spring crops calls forth all the energies of the farmer, and exacts the application of all the strength at his disposal to keep pace with the rapid advancement of the season, which, if neglected, entails a heavy penalty. Again, in England, the field or outdoor work is accessible throughout the year, and every successive month has its allotment of labour. But in Canada, all field work is suspended for several months, and field operations contracted within a short space of time. The cost, also, denies unlimited use of manual labor to extra work on the farm, unless applied to the production of immediate profit. The employment of extra hands at the present oppressive rate of wages, for ornamental purposes and remote convenience, would soon leave the farmer pennyless who had nothing more to depend upon than the profits of his farm. I have not introduced these remarks to deter the farmer from pursuing the culture of Live Fences, but to guard him against the impression that it is a simple and consequently an inexpensive process. The farmer, to grow a good and servicable hedge, must make up his mind to encounter both cost and labor before he embarks in the work, or can succeed to his satisfaction. He will know, however, that every kind of fence demands attention, and must be well looked after to keep it in a state to prevent trespass. That being admitted, I firmly believe that the Native Thorn, if well handled, and not planted to a greater extent annually than the farmer can conveniently manage without encroaching on other occupations, will be found in the end the best and cheapest fence he can construct. It must, however, be the work of time, and not of force, remembering that the beautiful and enduring Hawthorn Hedges of England are not the production of a generation, but of the patient progress of time.

I remain, my dear Sir, yours truly,

JOSEPH BECKETT.

Wm. McDougall, Esq.,
Mill Bank Farm, Yonge Street.

TO IMPROVE SEED POTATOES.—Charles Seager of St. Louis recommends the following easily-tried method of improving potatoes, so as to restore them to the general soundness, richness and mealiness of this valuable root:—The plan is this: keep back some seed potatoes for six or seven weeks after the usual time of planting, say till the last week of June or the first week of July, and then plant and cultivate them the same as stock potatoes. They will grow until the frost withers the vines, when they should be dug. As they have not had time to mature they will be quite small—not more than an inch or an inch and a half through; but they should all be carefully gathered, and kept safe from frost through the winter, and planted at the usual time of planting in the spring—one of the small potatoes being sufficient for seed in each hill. The result will be large sized, sound, mealy potatoes, as I have proven by actual trial. I hope that it will be tried by some of our farmers this year."

TRADE IN INSECTS.—Bugs are an important article in the trade of Rio Janeiro. Their wings are made in to artificial flowers, and some of the most brilliant varieties are worn as ornaments in ladies' hair. One man manages to earn his living by selling insects and other specimens to the strangers who visit the port. He keeps twelve slaves constantly employed in finding the bugs, serpents, and shells which are most in demand. The nearest approach to his business that we can remember is, that of the trade of fire-flies in Havana; the insect being caught and carefully fed on the sugar cane, is used as an ornament for ladies' dresses.—Being twice the size of the American fire-fly, it is very brilliant at night. The creoles catch them on the plantations and sell them to the city belles; some of them carry them in silver cages attached to their bracelets. They make a fine display by lamplight.—*Selected.*

SHIPMENT OF STOCK FOR CANADA.

(Abridged from a Dumfries paper by a Correspondent.)

Annan, 24th April, 1856.

There was taken on board the brig *James Redding*, Captain John Reddick, this afternoon, at Annan, Waterfort Jetties, to sail to-morrow for Quebec, the following valuable Stock: A splendid dark-gray stallion, three years old, bred by Wm. Byres, Wharton, Cumberland, purchased for £150. A one-year-old brown colt, price £50, bred by Mr. John Johnstone, White-Know, Nichol Forest, Cumberland. Five Leicester ewes and two tups, purchased in England, at an average of £7 each. One yearling short horn bull, bred by Mr Syme, Redkirk, purchased from Mr. Isaac Fankes, Outertown, Warmanbie, for £60. The sheep and bull are for W. and R. Armstrong, Markham, Canada West; and the horses belong to Mr. Joseph Thomson, there, who sails with the brig in charge of the animals, having come to this country expressly to purchase. The gray stallion is highly recommended, and took two premiums at Carlisle District Agricultural Meetings. Also, four one-year-old, pure-bred, short-horn heifers, from Mr. Syme, Redkirk, Gretna's highly-valued herd; and a bull, one year and two months old, from the same herd, valued at £60. Also, a one-year-old bull, from near Coldstream, valued at £60. These short-horns are of the purest breed, and are shipped for Mr. George Millar, Markham; except the first-mentioned short-horn bull, which goes as a present to a friend of Mr. Symes, resident in the vicinity of Toronto. There are also two rams, from the stock of Mr. Wilkin, Tinwald Downs, for Mr. Millar, valued at £15 each. Five Leicester rams and fourteen ewes with lambs, purchased in Yorkshire and the borders, at high prices, for Mr. James Dickson, Clarke Township, Canada West. A fine short-horn bull and heifer, and a Galway heifer, bred at Balligg, stewardy of Kirkcudbright, for Mr. George Roddick, Cobourg. A one-year-old brown colt, bred by Mr. William Dalziel, Castle Hill, by Lockerbie; shipped by Mr. Dalziel's brother, who goes out as an emigrant. We observed, also, two turnip-cutters, from Stakepond Foundry; a plough and a sawing-machine, shipped by Mr. Syme, Redkirk; also, a quantity of turnip-seed, for Mr. George Roddick, Cobourg, &c.

EVERLASTING LAYERS, &c.

I met with an odd Number, a long time ago, wherein Mr. Buckland recommended keeping a kind of domestic fowls he termed everlasting layers, which I expect are the same as I kept in England, known by the name of Algeirenes. I had them five or six years old, that never shewed any inclination to sit, so that I kept two or three of the common kind to hatch chickens. I know their value but should like to know where they are to be got in this country. Perhaps Mr. Buckland could tell me.

I should also like to know, whether it would answer to sow lucerne amongst barley in the same manner as clover, in order to obtain a crop the next season, as I should like to seed down my orchard with it.

A SUBSCRIBER.

To the Editor of the "Canadian Agriculturist," Toronto, C.W.

REMARKS.—I am not aware to what particular observations of mine a "Subscriber" alludes. The term "Everlasting Layers" is applied to hens derived from different breeds, but more particularly from those of the Spanish and Hamburg or Dutch. Where the particular variety mentioned by "A Subscriber" can be procured in this country, I can give no precise information. Something, probably, might be learnt by applying to some of the numerous improvers of poultry, either in Canada or the United States. Where any considerable number of fowls is kept, a few hens which are not inclined to sit, and lay a larger number of eggs through

most of the year, particularly in winter, are much to be sought after and encouraged. It should be remembered, however, that continual laying tends very much to debilitate the condition of the bird: and for purposes of breeding, hens that are good sitters must be used for hatching the eggs. The black Spanish, or some of its sub-varieties, are among the most prolific layers, and their flesh is particularly fine and delicious. By warmth and judicious feeding a hen may be made to lay as many eggs in two years as she would under ordinary treatment in three; and everybody knows that a fowl fattened at two years old is much more tender and palatable than one that is older. This and other breeds distinguished as abundant layers, has the reputation of being particularly liable to lay soft or shell-less eggs. Too much exciting food will sometimes produce this effect among poultry in general. Close confinement, or the want of fresh grass, or the absence of calcarious matter, such as lime, rubbish or chalky materials, may occasion in the eggs of the Spanish more than other fowls a deficiency of shell formation.

"No one," remarks a modern author, "who has not observed the natural craving which poultry closely immured and fed on dry diet testify for green food, such as parsley, cabbage, and beet-leaves, can imagine the avidity with which they will devour such substances at times. Confined in towns, fowls often experience an intense longing for such a change from grain; and if the desire be not satisfied, the Spanish, more than fowls generally, from their greater sensibilities, may suffer in the internal agencies which are necessary for the shell-work of the egg."

With respect to seeding down an orchard with lucerne, it would be better not to have barley, oats, or indeed any spring crop whatever. Lucerne belongs to the lime family of plants, and will not thrive upon a wet clay or a poor sandy soil. Upon deep, calcarious, rocky soils it produces abundantly. The shade of trees, however, would cause it to be feeble and less nutricious. It is a plant, on a genial soil, and under suitable treatment, that is very productive, and may be mown two or three times in the course of the season. It should be sown in rows, the intervals kept perfectly clean by the frequent use of the hoe, and a liberal top dressing of farm-yard manure should be given at least every second year. Being a long-rooted plant, deep and perfectly clear culture is essential in preparing the ground for this crop.

G. B.

GROWING PEACH TREES.

Friend Moore, of Norwich, C.W., gives us the result of his experience in raising Peach Trees, generally considered a difficult operation in Canada. He says:—

"I have 275 peach trees on my farm, and not one dead one, while my neighbours are digging theirs up. I find they have generally brought their trees from a distance, the soil in which they were grown being different from that in which they now are. Mine were all raised from the pit, in the same soil they are now growing in. *Query*—Does a change of soil hurt the vitality of the tree? Thy friend, GILBERT MOORE."

PATERSON'S REAPER.

We intended in our last number to have called the attention of readers in the neighborhood of Richmond Hill, and adjoining townships, to the Implement establishment of Paterson & Brothers, near the Richmond Hill Station of the Northern Railroad. They are an enterprising firm, and so far as we can learn, their machinery has given much satisfaction to those who have used it. They make an improved Reaper of the Seymour & Morgan pattern; and from the testimonials given them by a number of farmers, whose names are a sufficient guarantee for the truth of their statements, we have no hesitation in recommending their Reaper to the public. It is generally admitted that, as a Reaper only, the Seymour & Morgan pattern is not excelled by any other yet introduced into Canada.

REAPERS AND MOWERS.

So many machines, more or less "improved," are now before the public, that it is becoming rather difficult to determine their respective merits, and purchasers are at a loss to know which will best answer their purpose. As we remarked in a former nnmber, no one machine will be found the *best* under all circumstances; and it therefore becomes important to ascertain the distinctive traits and peculiarities of each. We observe that in the trials of Reapers to be made this year in several of the adjoining States, a scale of "points" has been decided upon, to enable judges to give a more intelligent and satisfactory decision than under the hap-hazard system. We would recommend a similar plan for trials in Canada, and it should also be adopted as far as practicable at Shows. The State Agricultural Society of Illincis propose a trial of Reapers and Mowers, to begin with the harvest in the southern part of the State, and go to various places north as the grain ripens. Three persons are to be placed at each place of trial, when decisions are to be made upon a scale of points annexed; and are to seal up their decisions, and to deliver them to the Superintendent appointed by the Society; and at the close of the season, the decisions are to be opened by the Executive Board, during the State Fair. The machines on trial are all to be present at the Fair. Six entries are required by the 15th of May, to insure th etrial. Entry, $100; premiums of Reaper, $50, $25; Mower, $50, $25; combined Reaper and Mower, $50, $25.

This will be a good opportunity to test machines; and should the Judges be discreet and disinterested men, we should hope for a decision that would prove valuable.

SCALE OF POINTS IN TRIALS OF REAPERS.

No. 1.	9	Cost of machine.
2.	8	Simplicity of construction to do its work.
3.	10	Facility of management, including time and room required for turning.
4.	30	Durability and reliability.
5.	16	Adaptation to varied and uneven surfaces, and to cutting at different heights.
6.	30	Freedom of the knife from clogging by fibrous or gummy matter.
7.	9	Motive power, or power required for a given amount of work.
8.	45	Manual labor in raking.
9.	26	Rapidity, or amount of harvesting in a given time.
10.	45	The manner of leaving the grain for binding.
11.	72	Saving of grain in cutting, binding, and handling.
	300	

SCALE OF POINTS IN MOWERS.

No. 1.	9	Cost of machine.
2.	8	Simplicity of construction to do its work.
3.	10	Facility of management, including time and room required for turning.
4.	30	Durability and reliability.
5.	10	Adaptation to varied surfaces.
6.	16	Adaptation to cutting close, &c.
7.	70	Freedom of the knife from clogging.
8.	9	Motive power, &c.
9.	20	Rapidity, or amount of cutting in a given time.
10.	30	Manner of leaving grass for curing.
	212	

SCALE OF COMBINED REAPERS AND MOWERS.

300	Reaper scale.
212	Mower scale.
38	Ease of convertibility.
550	

HOW TO DISSOLVE BONES.

Chinguacousy, May 2nd, 1856.

Sir,—I notice in your January number the superior value of bones dissolved in sulphuric acid, compared with ground bones, as an application to the Turnip crop. Would you be so kind as to inform your readers what quantity of sulphuric acid to a certain quantity of bones, and what kind of a place or vessel to dissolve in, and how used after dissolved; and you will much oblige, your humble servant,

John Snell.

1st. How the Bones should be prepared.—The bones to be used cannot be broken too small; the more extensive the surface presented to the action of the acid, the more rapid and perfect will be the solution. The bones usually employed are in too large pieces; and a higher price should willingly be given for them when reduced to a powder. In every farmyard, an old sugar hogshead should be kept, into which all the bones, woollen rags, old hats, and broken leather should be thrown and preserved for being reduced to manure in the vitriol vat.

2nd. Quantity of Vitriol to be used.—The acid should be purchased of full strength, that is, of the specific gravity at which it is sent from the manufactory, viz., 1.845. It should be kept in a closed vessel, as when exposed it rapidly attracts moisture from the air, and becomes weaker. It must not be forgotten that it will burn both the skin and clothes, if allowed to come into contact with them. When the strong acid is mixed with water, a considerable amount of heat is produced; twenty-five pounds of oil of vitriol mixed with ten pounds of water, will raise the temperature to 266 degrees. The proportion of acid to be used in the preparation of vitriolized bones, is one hundred weight of acid for every two hundred weight of bones to be dissolved. A smaller amount of acid is frequently applied; but the above proportions will give the most satisfactory results.

3rd. Quantity of Water and mode of applying it.—When undiluted vitriol is poured upon bones, violent action is produced, but continues for a very short time, as the gypsum, which is the first new compound formed, covers the surface of the pieces of bone with a crust, which prevents the acid from coming into contact with the unaltered portions, and in consequence its action is retarded, and a perfect solution is not procured. If we drop some concentrated vitriol upon a piece of limestone, there is a bubbling up or effervescence from the escape of carbonic acid gas; but it continues only for an instant. A crust of gypsum forms and protects the stone from the acid; but if we use vitriol diluted with water, the action and escape of gas continue for a much longer time. The best plan, therefore, is to thoroughly moisten the bones we intend to dissolve, by pouring over them a quantity of water and allowing them to soak in it for an hour or two before adding the acid. The quantity of water used should be three or four times that of the vitriol to be employed. This mode of applying the water obviates the trouble of mixing together the vitriol and water in a separate vessel, as some recommend, and the heat generated, by adding the strong acid to the moistened bones, greatly facilitates the decomposition, and hastens the preparation of the compound.

4th. How the Mixture of the above materials should be made.—Six bushels of bones, ground as fine as possible, are to be placed in any convenient vessel; an old iron boiler, or a sugar hogshead, even though not perfectly water-tight, may be made fit for use by plastering up the holes and seams with plaster of Paris, or by filling them with melted pitch or asphalte; and even a hole dug in the ground;

and lined with firm plastic clay, may be used when no proper vessel can be procured. An old sugar hogshead, however, with about a third of its length cut off, and the seams secured by a coating of pitch, asphalte, or plaster of Paris, makes a first-rate vitriol vat. In the first place, 48 gallons of water should be poured over the bones, and after allowing them to remain together for an hour or two, that the pores of the bones may be penetrated by the liquid; 133 lbs. of strong vitriol should be added, as the exact quantity required should be ordered from the manufacturer, to avoid the trouble of weighing and pouring from vessel to vessel, which would otherwise be necessary. When the acid has been added and the violent effervescence has ceased, the mixture should be occasionally stirred up; for which purpose a two-pronged fork may be conveniently used. As the fumes which are given off are exceedingly unpleasant, the vessel should be placed under a shed, at some distance from the dwelling-house. In about three days the solution will be ready for mixing with charred peat mould, saw-dust, or any convenient substance; or it may be diluted with fifty or sixty times its bulk of water, and applied with the manure-cart. The quantities given above will be sufficient to prepare manure for a statute acre, and if used with half the usual quantity of farm-yard manure, which is a plan highly to be recommended, in convenient situations—there will be a sufficient supply for two acres.

The farmer will remember, that where vitriolized bones are the only manure applied, the addition of some alkiline substance will be found a judicious practice.

WOOD ASHES.

The virtue of ashes as a dressing for all crops, is, we think, not properly appreciated by a great many, who live by tilling the soil. It is everywhere and on all crops, except perhaps clover, worth as much as plaster, and, on some, far exceeds it as a solvent and stimulant of vegetation. Its action is palpable to the most careless observer in its effects, and the manner in which it acts, is of easy explanation, which is more than can be said of plaster.

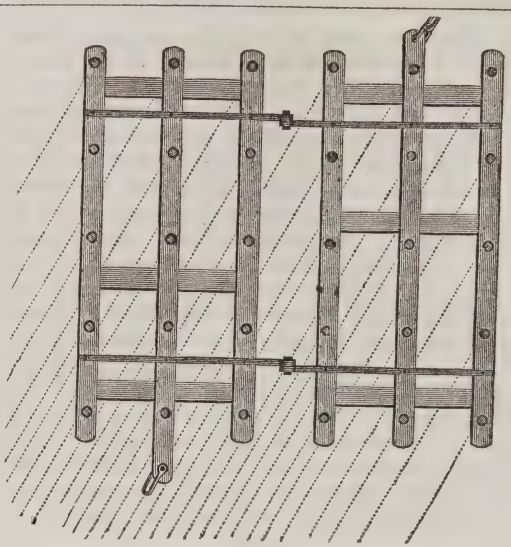
In the first place, potash is one of the most deliquescent salts, or has ability to attract moisture. A lump of potash, when dry, is as solid and hard as a well burned brick, but when exposed to a damp, or night air, it nearly doubles its weight and becomes a liquid, so great is its attraction for watery vapor. This is one of its features, but its great and important function is the supply of silicate of potash—silex or sand dissolved in potash—to form the glazing of straw, hay, cornstalks, and various other vegetable structures, without which no cereal crop can be perfected.

Some soils, particularly clays, contain a sufficient portion of this material, until they become worn and effete. Ashes are most beneficial on sandy, loamy and gravelly soils, that do not contain mineral potash, or its elements. When compared with plaster, the only objection to the profitable use of ashes is its easy solubility—heavy rains dissolve and carry off the potash beyond the reach of the plant; while plaster being insoluble, its action is not destroyed by water.

In this region, wood ashes are about eight cents per bushel; while the price of plaster at the mill is about twelve cents, and the drawing it several miles to be added to its cost; which if our position is correct as to the value of the two manures, it behoves the farmer to make and save all the ashes he can; especially for the corn crop, for which it is unanimously admitted to be worth more than plaster. The custom is now generally prevailing, to mix them together, producing a very striking effect. It has been suggested that broadcast sowing of ashes is equally efficacious with application to the hills, and we are disposed, from some experiments exhibited, to give credence to that course, if double the quantity is so applied.

With *leached ashes*, the effect is not as quick, nor as apparent on crops as unleached; but their action is longer felt when treble the quantity is used. They contain silex in a firm and impalpable state, and some potash and lime, ready for solution. Silex or flint being artificially nearly insoluble, except by the fluoric acid, a substance very sparingly produced by nature, and then in a neutral combined state.—*Rochester New Yorker.*

Soda Fried Cakes.—One cup of milk, two of sugar, three eggs, two teaspoons of cream tartar, one of soda.



HARROWS.

A well constructed harrow is a most important and effective implement in fitting the soil for the reception of seed, by breaking up clods, disengaging roots, and pulverising the earth. Great improvements have been made within a comparatively recent period in the construction of the harrow, by which a more perfect pulverisation of the ground and a great saving of time and strength are each secured; and he must have lived and observed to little purpose, who is content to use the old clumsy and coarse harrow of former days, when any of the several improved forms are so readily obtained.

Harrow teeth should be made of Swede's iron, steel pointed, tapered at the upper end to fit a corresponding mortise made through the timber; and the teeth made fast by a nut and screw, to prevent their becoming loose, working up, or falling out.

We give above a cut of an Improved Hinge Harrow. It is usually made to take a breadth of five feet. It is composed of two pieces of frame-work, connected to each other by iron hinges coming together like common barn-door hinges, and which, extending across the pieces widthwise, are bolted to each bar, thus greatly strengthening the harrow. The ends of the bars are secured from splitting by iron rivets. The harrow may be folded double, or separated into two parts, for the convenience of transportation or other purpose. Either half may be lifted for any purpose while the implement is in motion; and the easy and independent play of the parts up and down upon the hinges, enables the instrument to adapt itself to the surface of the ground in all places, so that whether going through hollows, or over knolls and ridges, it is always at work, and every tooth has an operation upon the soil. There are thirty teeth in the harrow, and yet they stand equidistant and wide apart each way, so that while from their number and arrangement the ground is worked fine, they are not liable to clog. This harrow is made heavy for rough land and the pulverising of sod furrows, or light for grain and grass seed. It is a very light pretty harrow for one horse, when made of bars $2\frac{1}{2}$ inches square, with teeth of half inch steel; and thus made, and carrying a breadth of five feet, one horse will harrow as much ground in a day with it, as is usually accomplished by two horses. It is made to draw either end forward; and when the teeth become dull by working in one direction forward, the team may be hitched to the other end, and they are sharp again.

In a former number, we gave a cut of an Expanding Reversible Harrow, which we used this Spring, and found useful among stumps and on rough ground. It cost about $7 to construct it.

AGRICULTURAL REPORTS.

Caledonia Flats, 21st April, 1856.

Dear Sir,—As my garden has been selected by the experts of the Township of Caledonia, as the one entitled to your premium, and as you require information not furnished you, and as you request it, I will endeavour to furnish you with some information respecting it.

The garden in question is situated about the centre of Caledonia Flats, on the banks of the Caledonia Creek, which meanders through this fertile tract, which was first located and improved by the late John Chesser, sen., Esq., who was one of the pioneers in this section of country. It can be only considered a good kitchen garden, with some choice apples and some small fruit, such as three kinds of currants and some gooseberry bushes, &c.

From the depth and fertility of the soil, vegetables are produced in great profusion; but as I am not a professed gardener, I cannot give you such a description as you may wish, but if I am spared a few years I will introduce fruit and flowers that will fully come up to your requirements. Thanking you for your liberal premium,

I am, dear Sir, yours respectfully,

(Signed) Wm. Bradley.

Charles P. Treadwell, Esq.,
Ex-President of Agricultural Association of Upper Canada.

Caledonia, 17th April, 1856.

Dear Sir,—On reading the report of the experts of the Township of Caledonia Agricultural Society, I am fully convinced that justice was not done, in furnishing you the required information in regard to the farming operations of persons competing for your premiums, and as my name was returned as being entitled to the premium for the best farm in this Township, and as you particularly requested that I would furnish you with a statement of my mode of farming, I will endeavour to do it in as brief a manner as possible, and I regret that it had not been done at an earlier date.

Your object in advancing the interests of agriculture is generally acknowledged throughout the country, and I hope that the suggestions which you made may yet be appended to the Agricultural Law of the Province. The farm offered for competition is the one on which I reside, being composed of the east half of lot No. 12, in the first concession of Caledonia, two miles from the Caledonia Springs, with a fine creek running through it, near my house and barn-yard. The farm has been reclaimed by my own hand from the forest, except some small patches cut out to make potash. I came to this country a poor lad in 1825, alone and without funds, from Fermanagh in Ireland; therefore it cannot be expected that the perfect system of British agriculture can possibly be carried on, when the owner of the farm is obliged to lodge in the first and second year in a cabin, covered with the bark of trees taken from the surrounding forest. The soil is mostly a sandy loam, with a sub-stratum of limestone, of the best quality for building, and also for making lime of a superior quality. The wood land is reserved on an adjoining farm, on which there are excellent farm buildings. I regret to state that I have made several attempts to plant an orchard, but have not succeeded. I have, however, young trees growing, from which I hope better success. I always plough and prepare as much ground as possible in the autumn, owing to the short season allowed by the spring for farming operations. I grow Swedish turnips, carrots, beets, and mangel-wurtzel, but not in large quantities. I have, in former years, produced one thousand bushels of Swedish turnips on an acre. I always sow pease, and plant corn and potatoes, and have large crops of each. I generally sow wheat after the root and corn crops, and seed down with timothy and clover. I generally mow it for three years, and then, as I have more land than I can manure properly, I pasture it for a certain number of years, to renovate it before breaking it up, when I sow pease, and if the land is in good heart, sometimes wheat.

I use the Scotch iron plough, the Scotch harrow, and the drill harrow, with both cart and waggons for gathering the harvest and putting out manure.

In reference to cattle, I would remark that several years since the Agricultural Society of the United Counties of Prescott and Russell purchased a fine Ayrshire bull and a

Leicestershire buck, which the Society found it inconvenient to keep more than one year, and when they were sold at auction, I secured the bull, by which my stock and that of the neighbourhood has been much improved, and I recently procured a full-blood short-horn bull, bred by Captain Rhodes, which promises well, and will do much for this vicinity. My stock of horses is mostly of the Canadian breed, being fully convinced that for the work of this country there is no horse that, for the same value and keep, will perform so much service.

My sheep are the Canadian, crossed with Leicester; they are well adapted to the climate, and give good wool and good mutton. My swine are a cross between the grass breed and Berkshire, and answer well. Poultry is the common dunghill fowl, which lay well, and, when fat, are excellent for the table. I keep geese and ducks, and they have a fine creek to swim in. I have surface and subsoil drains, the latter filled with stones, and covered with straw and brush, and then with sods (the grass downward), to prevent the earth from sinking and obstructing the water, and of sufficient depth not to be interfered with by the frost and not to impede the plough.

I regret that there are no tile drain machines yet introduced into this section of country. My fences are made of heavy cedar logs, well capped and staked, and when I have stone to draw from the fields, I have made half wall, and put on two rounds of cedars, with caps and stakes; these form a protection against pigs, sheep, and unruly cattle. My buildings consist of a good stone house, with a verandah around it, an excellent cellar under the whole of it, a part of which forms a fine dairy room, with a door towards the creek, gowing out on a level with the ground, and well ventilated; an excellent wood house and a carriage house, a stone ash house and smoke; one fine barn, two stables, and one hundred and fifty feet of shed connecting the stables and barn, and completely enclosing the farm-yard.

I fully agree with your remarks in reference to every member of the Agricultural Society, being furnished with a copy of the Toronto *Agriculturist*, and this should be rendered imperative by statute, and I fully endorse your views that every farmer should grow his own timothy and clover seed.

My business has not been purely agricultural, for having generally a large amount of produce, and not always a remunerative market, I have turned it into lumber, and I have been rather fortunate in choosing favourable years for these operations, and if I have been successful, it has been in a great degree owing to these circumstances.

I have a son, who is just setting out in life as a farmer, on a farm that has been cleared of stumps and stones, and which is well fenced, and I have recommended him to adopt the system which you have condensed in your offer of premiums, and the making of a chart of his farm, and the keeping of a strict account of his farming operations—are things I will urge him by no means to omit.

Should you think that these observations may be of any service to the public, you are at liberty to publish them. Thanking you for your liberal premium of five pounds,

I am, dear sir, yours most respectfully,

(Signed) James Cross.

Charles P. Treadwell, Esq., &c., L'Orignal.

TRIAL OF PLOUGHS—REPORT OF COMMITTEE.

Toronto, 30th May 1856.

Sir,—The undersigned having been requested to act as a Committee to test the efficiency and ease of draught of the several Ploughs entered at a trial which took place near York Mills, Yonge Street, on the 29th April, beg to send you the following remarks, as the result of their inspection:—

Five Ploughs were entered, namely, one made by Modeland, of Brampton, Co. Peel; one by Bingham, of Norwich, Co. Oxford; one by Gray, of Haddington, Lanarkshire, Scotland; one by Howard, of Norfolk, England; and a Lap-furrow Plough, made by Ruggles & Nourse, Worcester, Massachusetts.

As the Committee considered that the merits of a Plough consist not merely in the quality of the work done, but also in the small amount of force or traction necessary for working the implement, they applied, as a test of this, Small's dynamometer, a very simple and excellent instrument. The result was as follows:—

	DRAUGHT.			FURROW SLICE.	
	cwt.	lbs.		Depth, in.	Width, in.
Modeland	3	108	...	6	8¾
Bingham	3	96	...	6	9
Gray's	4	32	...	5⅝	8¼
Howard	4	00	...	5	8½
Lap Furrow	4	28	...	5	10

From this table it will appear that Bingham's plough required less force than any of the others, while the furrow slice was larger. This implement reflects great credit on the inventor and manufacturer. The mould-board is very well shaped, and is calculated to lay down the slice properly. It may be remarked, however, that this Plough did not give the furrow slice so good a *cut* as some others. This, no doubt, was in great measure owing to the set of the irons—a point so essential to the proper working of a plough. The result was, that the grass was very imperfectly buried, and a much smaller amount of tilth was given for covering the seed. This defect can be remedied by any blacksmith who has been accustomed to put plough irons in order. The clevis of this plough was regulated by a screw, very ingeniously applied. The workmanship was very good; and altogether, this implement seems to deserve the encomiums passed on it here and in Europe.

Modeland's plough is very similar in shape and construction to Bingham's, and owing to the set of the irons, did the work better. It is strongly made, and is highly commended by those who have used it.

Gray's Scotch Iron Plough made the best work. This plough holds, on this side of the Atlantic, the high position which it has attained in Great Britain; it is unquestionably the best implement in use as a sward-plough, that is, for thorough and handsome work. It is, however, heavy, cumbrous, and hard to draw. The same patterns of castings, when affixed properly to wood, as has been done by Mr. Cairns of Paris, C.W., and others, give a handy and excellent implement, easily drawn, and in every respect better suited for every-day work than the iron plough.

The next in order is Howard's. This plough made fair work, but, as will be seen from the table, requires considerable force. It is a very complicated, heavy, expensive implement, and unsuited to the country. It had, however, the merit of a skim-coulter; but which, not being used at the trial, deprived the plough of one of its important elements. The skim-coulter is an approximation to the principle of the Michigan sub-soil. It cuts a thin paring from the top of the furrow slice, and thus more effectually buries the grass than can be done by the ordinary coulter. The American plough, however, is stronger, cheaper, and does the work far more thoroughly.

The last plough regularly entered for trial, was the "Lap-furrow." In light soil and in cross-ploughing, or stubble ground, in which there is not much grass, this plough might be used with advantage. It is capable of performing a large amount of work in a given time, but on stiff sod or hard clay it would make very inferior work.

The undersigned regret that a fair trial could not be given to the double plough of Messrs. Ruggles & Nourse. Although this implement is much inferior to those made on the same principle in the State of New York, yet in the hands of a good ploughman, it was capable of making better work than any plough on the ground. Unfortunately, the ploughmen present were unacquainted with the implement: it was also out of order, and there was too little time for a fair trial of it. As an exterminator of couch-grass, and a deep and thorough tiller, it stands unrivalled, and seems destined to supersede many ploughs now in use. The undersigned would suggest to the intelligent and thoroughly practical farmers of York, the propriety of making a special occasion for the trial of this important implement. This is all that is needed to render it generally appreciated.

In conclusion, it may be remarked that trial matches, such as that got up at your suggestion, will bear an important part in promoting good husbandry. They bring out many points which do not and cannot be made to appear at the ordinary ploughing match, by testing comparatively different implements. They deserve encouragement and attentive consideration from farmers, because, when properly managed, they must produce lasting benefits.—We have the honour to be, Sir, your obedient servants,

DAVID CHRISTIE. J. C. AIKINS.
E. W. THOMPSON. JOHN WADE.

W. McDougall, Esq., Editor *Canadian Agriculturist.*

[It is proper to state that Col. Thompson and Mr. Wade did not actually sign the above, but expressed their concurrenee in separate communications, which do not essentially differ from the more formal statement of Messrs. Christie and Aikins.—ED.]

Errata.—In a communication on fencing, which appeared in the May number, over the signature "C. P. T.," two or three errors escaped notice, which the author has requested us to correct. On page 141, 8th line from bottom, for "inroads of frogs," read "inroads of hogs." In 4th line from bottom for "moss fence," read "live fence." The reader will easily detect typographical errors that do not make a different word, but the above injure the sense.

Our Correspondents.—We are pleased to find that our agricultural friends are waking up to the importance of an interchange of views in the shape of correspondence in the *Agriculturist*. We have several communications on hand which we are obliged to defer for want of space. We endeavor to give insertion *first*, to those which, from their contents, are most applicable to the operations of the month in which they appear. Those of a general character and which are equally interesting at any period, must give place. We shall at all times be happy to receive the views and opinions of our readers, on practical points especially, and resign a large share of our editorial space to their communications.

New Implements.—At the Show of the Yonge St. Ag. Soc., held at Richmond Hill, on the 22d ult., we noticed some excellent horses, and several promising colts and fillies. The implements exhibited were also of a superior description, indicating the rapid progress Canada is making in the construction of labor saving machinery for agricultural purposes. The Reaping Machine of the Messrs. Patterson & Brothers, of Richmond Hill, was awarded the first prize. It was finished and adjusted in a most superior manner. Mr. Goodfellow's Reaper was also well got up, and the frame work of a Reaper was exhibited by Mr. George Darling, which has some new features. A new Horse Rake, manufactured by Mr. Eckhart, of Unionville, Markham, was considered by some the most perfect implement of the kind, they had ever seen. His Cultivators were also very much approved. This Society appears to be in a flourishing condition.

L. G. Morris' Great Sale of Devons, Short Horns, &c.—We beg to direct the attention of our readers, especially those interested in the breeding of improved stock, to the advertisement of Col. L. G. Morris, on another page. We have seen his herd of short horns, and knowing that he has imported some of the very best blood to be had in England, and at prices that no one with ordinary means could afford to pay, we can safely aver, that no better opportunity has ever been afforded on this side of the Atlantic, to secure cattle from the best herds of England, without the risk of importation, and probably at reasonable prices. Col. Morris informs us that he intends to sell about fifteen short horn bulls and bull calves, and his entire herd of Devons, probably the best in America, *without reserve*. He intends to confine his attention hereafter to the short horns, and therefore will clear his farm of all other stock, including his South Down Sheep, and Berkshire and Essex Pigs. We thank Col. M. for his kind invitation to visit Mount Fordham. If our own farming operations permitted, we should be happy to accept the offer of a "reserved bed" at his hospitable mansion during the sale, but we fear we shall be detained at home by duties which cannot well be entrusted to others. The sale takes place on the 24th and 25th June.

Prize List.—We will present with our next number the Prize List for the coming Provincial Exhibition at Kingston.

Declined.—We respectfully decline to insert the lines "On the Death of My Sister," on the ground that they are hardly suited to our pages.

Col. Morris' Sale.—We have received an Illustrated Catalogne of the Short Horn and Devon Stock to be sold on the 24th and 25th June, at Mount Fordham, N. Y., by Col. S. G. Morris. Any of our readers who may wish to consult this Catalogue can have the opportunity by calling at the *Agriculturist* office.

Registering Cattle.—A subscriber wants to know how he may obtain Certificates of Register for Cattle. He should apply to the Board of Agriculture in this city, stating full particulars of pedigree, both on the part of Sire and Dam. A connection must be shown with the British or American Stud or Herd Books.

Pedigrees of Canadian Stock.—We have handed Mr. Walton's communication to Mr. Buckland. The Board of Agriculture have both the American and English Herd Books in their library, and we have no doubt the information desired by Mr. W. will be sent him.

THE

Canadian Agriculturist.

VOL. VIII. TORONTO, JULY, 1856. No. 7.

MAKING BUTTER.

We have published hints and directions for making Butter so frequently, that we fear some of our readers who *know how* to make good butter, and *make* it, will accuse us of imposing on their good nature by repetitions on a subject with which they are already sufficiently familiar. But if these readers knew how small a proportion of the butter made and sold in Canada can really be called *good*,—how difficult it is in our large towns, especially in the spring of the year, to purchase butter that is fit to eat, they would admit that *butter-making* is not *generally* well understood, or, at all events, not carefully attended to by the majority of our farmers. On public and national grounds, this is to be regretted. The Dairy is an important branch of Canadian husbandry, and we should seek to improve and extend it with as much solicitude and zeal as any other. It is a fact not creditable to us as an agricultural community, that we do not make good butter or good cheese, nor yet enough of such as we do make to supply our own local demand. Large quantities of butter, and still larger quantities of cheese, are imported every year from the United States. Go into any of our grocery-shops and ask for good cheese, and you will be presented with that of American manufacture; ask for good tub-butter, ditto. The farmers of Upper Canada seem to have devoted their attention to the best means of exhausting their land with grain crops; they plough up their pastures; sell their best, if not *all* their calves to the butcher, and neglect their dairy as much as possible.

This system must be changed. If the shrewd forecast, the enlightened judgment of Canadian farmers will not effect it, the evil consequences it must soon entail will bring it about. We have opened up a wider field than we intended at the outset. Our object was merely to submit a few remarks upon the common, but too often badly-conducted process of butter-making. Those who do not need hints on the subject, may pass on to the next article.

The first requisite to making good butter is to have good milk. To have good milk two things are absolutely essential, good cows and good keeping. Care must be taken that cows have good food and that they do not eat things that taint the milk, as cabbage stumps, garlic, and other strong aromatic vegetables. The best food for milk in summer is good tame grass, as timothy, blue-grass, red-top or clover. The white clover is the best. Admixture of white clover with any or all of the other grasses, is doubtless preferable. Having from good cows and good keeping obtained good milk, the next essential thing is

CLEANLINESS.

It is vain to expect good butter from dirty pans, crocks, pails, churns, rooms or place. There is nothing more easily tainted than milk; and butter is next to it for this peculiar infectious quality. Any impurity, bad smell, decomposing substances about milk will harm it. It must be set in and surrounded with pure atmosphere. Where there is filth there is generally a process of decomposition going on, which throws out bad gases and a disagreeable odor. Milk absorbs these when they come in contact with it. Decaying vegetables, wood, and everything that can engender filth or mustiness or sourness must be carefully removed. To avoid sourness, all the vessels, such as pails, pans, crocks, churns, &c., should be thoroughly scalded with boiling water before used. They must be sweet, and kept sweet, to be sure of good butter. A failure here is the cause of an immense amount of bad butter. The milk-room and things must be not only tolerably clean and sweet, but absolutely so. Absolute purity is necessary.

SETTING THE MILK.

The milk should be set in broad, shallow vessels. Broad, shallow, earthen, stone or tin pans are best. The milk should never be over an inch or an inch and a half deep. The object is to have the cream rise quickly. The cream or butter is held in very small particles all through the milk. It is lighter than the milk, and if left to stand in perfect quietness will rise to the top. But it is so little higher that it rises very slowly. If the milk is deep, as in a deep crock or pail, the butter or cream from the bottom does not have time to rise to the top before the milk sours. Let any one try the experiment of setting the milk in shallow and deep vessels, and they will soon have a practical demonstration of the propriety of our recommendation. Milk should set from twenty-four to thirty-six hours, or as a general rule till it sours. It should occupy a cool place secured from flies and insects, and should be undisturbed till it is skimmed. It is necessary to have it in a cool place, in order that it shall not sour before the cream all rises. When skimmed some of the milk should be taken off with the cream, otherwise it will be too thick for churning. The cream should be kept in a cool place free from every impurity.

CHURNING.

Churning should be done as often as twice or three times a week, especially in warm weather. Many let their cream stand too long. Some churn every morning. Some churn the milk while it is fresh; but experience, we believe, has generally

decided in favor of churning the cream as often as twice a week. Some suppose that the better quality of butter is obtained by churning the cream before it sours, but nearly all good dairymen, so far as we are acquainted, let the cream sour before it is churned, but take good care that it does not get too sour. To obtain the very best article of butter it is probably best to skim the milk after it has set some twelve or eighteen hours, and use only that; letting the milk stand for a second rising. Some skim every morning, and for the best butter use only the first morning's skimming. The temperature of the cream for churning should be about 55 degrees, Fah., when it is put in. It will rise from five to ten degrees while churning, owing to the chemical changes during the process. If the temperature is much higher than this the butter will be too soft and white. If it is much lower the butter will not come readily, nor be easily gathered, nor yield so large a quantity. The cream should be churned rather slowly, but steadily, and butter should not be expected under forty or forty-five minutes. If it comes sooner than this it will not be of the best quality. The time required for churning is much modified by the temperature of the cream. But it should not be so warm as to produce butter under 35 minutes churning, nor so cold as to require over 50 minutes; 40 to 45 minutes is the best period.

CHURNS.

Be in no hurry to procure the latest "patent." Churning is a very simple process, and complicated machinery only retards it. We have used many of the new-fangled churns, and have ascertained the merits of others from those who have used them. The conclusion we have arrived at is, that the common dash or plunge churn is equal to the best. The objection to it is, that it works hard, that the "up and down" motion is fatiguing. We acknowledge this defect, the more readily from our youthful experiences on the subject. The best and cheapest remedy or "improvement" we know of, is one we saw in the dairy of the late Mr. Delafield, of Geneva, N. Y. He was one of the most intelligent agriculturists of that State, and as President of the State Ag. Society, President of the Agricultural College, chartered shortly before his death, &c. &c., had been favored with all the new churns with which Yankee ingenuity has bored the country during the last ten years. He said he had put them all aside, and returned to the old plunge churn. The only *improvement* he had found it capable of, was to attach the dash to the crank of a balance wheel, which could either be turned by hand or by a foot-treadle. Any old iron wheel, of two or three feet diameter, and 30 or 40 lbs. weight, will answer the purpose. A blacksmith can make the crank in a few minutes, and when attached to a post in the dairy, high enough to allow the churn to be operated under it, you will have as good a *patent* as any in the market. The dash must of course be jointed to a pitman, and adjusted so as to descend perpendicularly. Any person of ordinary ingenuity will be able to carry out the idea upon its mere suggestion.

WORKING THE BUTTER.

When the butter has come it should be slowly churned or paddled with the dasher till it is gathered. This done, it must be taken from the churn and thoroughly worked, or washed until it is entirely free from buttermilk. The first thing and

great thing is to clear it of all buttermilk; not a part only, but all. It may be done by working it with the hand or paddle, or washing it. It may not be the best way. If washed, very cold and pure water should be used. If worked with the hand it should be quickly done, that the warmth of the hand may not soften or melt the butter. The hands should be well cooled in cold water, and cooled often while working, by holding them in the water. It is well to work the butter twice or three times to be sure that all the buttermilk is out; once at the time it is churned, again the next day, and again the second morning.

PACKING DOWN.

When the buttermilk is all out and the butter is cold and hard, it should be well salted and solidly packed in stone jars or good wooden firkins, and covered over with clean wet linen or muslin cloth, and then covered with a layer of salt half an inch thick. To be kept it should be set in a cold, dry, clean cellar

An experienced writer sums the whole up thus:—"The chief points besides cleanliness, in making good butter, are these: To milk at regular hours; to place the milk in shallow vessels; to have a perfectly clean cellar, with a hard brick or flagstone bottom, and with shutters and wire screen windows to admit air and exclude insects; to skim the milk the moment it coagulates or 'lobbers,' which will be in 30 or 48 hours; to churn the cream at a temperature between 60° and 65° (in hot weather 55° to 60° is better) by the thermometer; to free the butter as much as possible from the buttermilk, and then add a sixteenth part of the purest salt; to work out the remaining buttermilk in 12 hours afterward and again in 24 hours, being careful not to work it too much at a time; to pack it closely in stone jars, till nearly full, and then spread clean, white muslin cloth over the top, pack closely a layer one inch thick of fine salt upon the muslin, and finally cover the jar with a neatly fitting cover. Butter thus made will keep a year, if placed on the bottom of a cool cellar."

Pruning Evergreens.—The *Horticulturist* furnishes the following observations on pruning evergreens:—

It is a question not often mooted, whether evergreens do or do not require the same cutting back as deciduous trees when removed. Our own experience indicates that a slight trimming is useful. The mode of operation on the Norway fir, for instance, is this: Cut back the limbs of last year's growth, using the dissolved shell-lac on cuts, and leaving the leader untouched. The effect is the same as that on deciduous trees, with this additional advantage: the plant throws out at least two—probably more—leading limbs, and the result is that of thickening the growth, and improving the appearance. For the sake of experiment, we carried this system to as great an extent, with a single specimen, as possible; ere many years elapsed, the limbs became so heavy with numerous branches, that they broke with their own weight. Others, cut back once in every three years, have attained rare beauty and a close habit.

Advantage of Keeping Manure Covered.—An experiment conducted by the President of an Agricultural Society, in England, shows that manure which was kept covered by 9 inches in depth with earth, so that no evaporation escaped, produced 4 bushels more of grain per acre, than the same quantity and kind of manure applied to the same extent and quality of land, but which manure had lain from the 13th January to the 4th of April, exposed to the weather.

MEETING OF THE BOARD OF AGRICULTURE.

A meeting of the Board was held, pursuant to a call of the President, in the City of Kingston, on Tuesday, June 10th. Present:—E. W. Thomson; J. B. Marks; Baron De Longueil; R. L. Denison; Sheriff Ruttan; Asa A. Burnham, and Professor Buckland.

After the minutes of the former meeting had been read and confirmed, the Secretary submitted a communication from the Secretary of the Bureau of Agriculture, stating that the four retiring members of the Board had been re-elected; viz:—E. W. Thomson, R. L. Denison, John Harland and Sheriff Ruttan. It was then resolved that, Mr. Thomson be President, and Mr. Marks, Vice-President, for the current year. Several letters were read, chiefly referring to matters connected with the Annual Exhibition; after disposing of which the Board adjourned, in order to meet the Local Committee; a nearly full attendance of which were present.

The intended site of the next show was then visited and examined. It consists of about 20 acres of the rear of the Penitentiary block, pleasantly situated on the Bath Road, upwards of a mile from the city. The land has been leased by the Government to the Agricultural Society of the County of Frontenac for a number of years, at a mere nominal rent. Subscriptions are being raised in Kingston and the United Counties, towards laying out and beautifying these grounds, and for erecting permanent building for holding agricultural and horticultural exhibitions. It is proposed to erect an ornamented building chiefly of glass, a small crystal palace in fact, for flowers and the finer sorts of artistic and useful work. The glass, which is of great strength and thickness, is shortly expected out from England. All extra expenses in consequence of erecting permanent fences, buildings, &c., will be defrayed from local funds, now in course of collection for the purpose. Much credit is due to the Kingston Committee, and the inhabitants generally, for their discriminating public spirit; and it is much to be desired that they will succeed in fully carrying out their patriotic object, and that other places, where the Provincial Show is likely to be held hereafter, will follow so truly, praiseworthy an example. The Board after approving of the plans, &c., could not but repose confidence in the judgment and efficiency of the Local Committee, who expressed their determination to find ample accommodation from their own resources, for the purposes of the Exhibition. After partaking of an excellent luncheon, provided by the Local Committee, near the grounds, during which, a most interesting convention and discussion were carried on, in reference to the forth coming exhibition, and the agricultural capabilities of the various sections of the Province, the Board adjourned to next day.

Wednesday, June 11th.—The Board met at 9 o'clock, A.M. Same members present as yesterday. The Report on the Premium List was received, and with a few modifications and additions, approved, and the list they amended was ordered to be printed and circulated. It was agreed to dispense with the refreshment tickets at the show, and to present each Judge with two dollars, in lieu thereof. Entries, as last year—are to be made on printed forms, which will be furnished by all Societies in due time, which forms must be filled in and signed, and remitted to the Secretary of the Board of Agriculture in Toronto, not later than Saturday, September 6th. All entries made afterwards, except in the ladies and horticultural departments, will be subject to a charge of 5s. each. The entry books are to be positively closed

on Tuesday evening, September 23rd, after which, no entries will be received on any account whatever. It was agreed that the trial of ploughs sent in for competition, should take place on Tuesday, September 23rd, Professor Wilson, of Edinburgh, having kindly undertaken to procure the Society, a dynamometer of the most recent and improved construction. The President, Baron De Longueil, has generously offered, in addition to his handsome premium for the best labor-saving machine, to supply hay to stock at his own cost; and the owners of wharves at Kingston, have also consented, with a considerate liberality, to forego the usual landing charges for live stock and articles brought to or returned from the exhibition. Altogether, the prospect of a first rate show is of the most encouraging description, and we are convinced that nothing will be wanting in the Local Committee, or the inhabitants of the good old town of Kingston, to make it such. After another consultation with the Local Committee, and the disposal of numerous details, the Board adjourned.

G. B.

RED ROOT—ENQUIRY.

To the Editor of the Agriculturist.

Cooksville, May 28th, 1856.

Sir,—I should feel much obliged to you if you would give me some information respecting a most noxious weed that has now got into our farms in this neighborhood, and which has so overrun some of them, that it has entirely choked the wheat. It is called here the Red-Root. I first perceived it about eight years ago, when I did not know what it was. As I then had only a small patch of it, and as I seeded the field down, I forgot all about it, (although I soon found it in all my other wheat fields, and I kept it down by hard weeding,) I broke up the field that had the small patch in it after it had been in grass for five years, and I gave it a good summer fallowing, and put in wheat; and last Spring I found that I had about a quarter of an acre of Red Root as thick as it could lie on the ground, just where the small patch was. I mastered it by constant hand weeding, but I had to go over it five times. I have just been looking at my wheat, and I find that there is some of it in every field. Could you tell me the real name of the weed, and the best means of destroying it; for I find naked fallows ploughed ever so well will not do; and also where it came from; for I think it must have been brought here with some seed wheat; for I don't think there was such a weed known here ten years ago. I send you a plant of the Red Root.

Albert Parker.

Remarks.—The specimen sent by Mr. Parker is well known as the *Red-root*, or *pigeon-weed*, in the adjoining townships, and probably has extended to most parts of Upper Canada. It is nearly, if not quite as difficult to keep under as the Canada Thistle. We have not had much personal experience with it, nor do we know much of its history. We understand that farmers in the Niagara District keep it down by Spring cropping for a few years, successively. Will some of our readers who are able to shed light on the subject, do us the favor of replying to our correspondent through the next number of the *Agriculturist?*

MORE ABOUT FENCES.

To the Editor of the Agriculturist.

Sir,—On looking over the April No. of your journal I was not a little surprised to see that that part of the country is so far behind in regard to Fencing. In this part of the country there is no controversy as to which kind of fence is best. The Agricultural Society of the County of Renfrew, 1855, awarded Mr. John Fisher, of McNab, the first prize for the best fenced farm. County of Lanark, Mr. Jas. Snedden, do.

The fences that took these prizes are the straight picket. It is undoubtedly the best and the most durable and cheapest that has yet been tried in this vicinity. In this Township the plan is universally adopted. I would make mention, in particular, of James Morris, Esq., John McIntyre, Flat Rapids; James O'Connor, and many others.

Those fences are built of cedar rails or poles; the ground block is 3½ feet long, say 9 inches thick, in which two holes are bored 10 inches apart, with a 3-inch augur. 3-inch pickets, 5 feet long, of round or split cedar, with sawed blocks to fit in between the pickets, to support the rails. The cap-piece is 15 inches long, bored to fit the pickets. It is 6 rails high, with small riders 38 feet long, so as to break joints, which makes a strong and neat fence. It is likewise the cheapest kind, as it only takes 138 rails to the acre, and the rails may be lighter than for angle fences. The pickets and block can be prepared in winter or bad weather. They can be put together and laid by until required for use, and then waggoned to any part of your fields or farm. The above kind of fence is never changed or removed by frost, and if you want to remove your fence, you can do so without taking your blocks or pickets apart.

Below is a rough sketch of the blocks, pickets, &c.

I find that I have trespassed too long on your time.

I remain, yours truly,

McNab, 24th May, 1856. JOHN ROBERTSON.

REMARKS.—The sketch referred to hardly needs to be engraved, as our readers will understand the plan from Mr. R.'s description. We may add that the rails are shown side by side, between the pickets, and not above each other, as they are sometimes placed. We don't see what is gained by this arrangement, as it is evident that the expense of "sawed blocks" between each pair of pickets and each tier of rails, would be avoided by making the end of each rail operate as a block for the other. The greater *width* of the fence gives it some advantage as against lateral pressure from wind, &c., but still, it strikes us that unless the pickets go through into the ground 10 or 13 inches, Mr. R.'s fence would be easily overturned by a high wind.

DISEASE AMONG CATTLE.

There has been a disease among the Cattle here the two last winters, by which many lost nearly all their cattle. Some call it the Black-hoof. They first swell above the hoof and then get lame, and in cold weather freeze, and then crack all round the foot. There has been no cure as yet got for the disease here.

Could you suggest any cure through your journal? JOHN ROBERTSON.

BUTTER ADULERATED WITH FLINT-STONE!—Astounding as is the announcement at the heading of this paragraph, it is nevertheless true. Butter is adulterated with flint-stones! This heartless and wicked fraud is especially practised in the low kinds of butter usually sold in large manufacturing towns to the poorer and industrious population. The flint-stones are ground and then chymically manipulated, until they are reduced into a soluble substance, which is known by the denomination of "soluble silica." When this latter preparation is dissolved in water it becomes a stiff gelatinous body, somewhat resembling strong jelly. This jelly is mixed to a considerable extent with butter of low quality, to which the fresh salt and colouring matter are added. The produce of this villanous adulteration is a compound which resembles a very good-looking dairy-made butter. But it has not the firmness or bright appearance of genuine butter, and is devoid of the richness and wholesome qualities of the latter. We have seen this gross adulteration at the laboratories of the Northern Analytical College, Sheffield; and we are credibly informed that Professor Calvert, of Manchester, has detected this fraud recently and frequently. Such is one phase of the adulterating system. It is a near approuch to, if not a verification of, the poor man asking for bread and having a stone given to him. If such unprincipled sophistications are not soon done away with by stringent laws and public condemnation, it will end in our better halves treating ourselves and friends with luxurious gastronomic entertainments, in which flint-stones, lime, sloe-leaves, and sand, will form the chief ingredients of the family spread; and we shall be enabled to ask our particular friends to come and take a cup of sloe-tea, with a little "toast and flint," gravel, constipation, and diarrhœa included. Surely some legislative interference might be brought to bear upon the subject; if it were only to compel the venders to placard on their goods the real quality. We should then be edified by show cards announcing the tempting truths as "flint butter," "Tumeric Mustard," "Vitriol Vinegar," "Carrot Coffee," and "Chalk Sugar-plums."—*Doncaster Gazette.*

DEEP CULTIVATION.

In a recent number of the *Mark Lane Express*, we find the following judicious remarks on the subject of *deep* ploughing as practiced by the best farmers in England.

"When the prophet alludes to the divinely-given wisdom which leads the ploughman to "open and break the clods of his ground," he characterized the operation of tillage in terms which the light of modern science and practice has enabled us more fully to understand. We "open" the ground not only to admit the seeds or to allow the free spreading of the roots of our crops, but to let in the atmosphere, the rains, and dews which impregnate the recesses of the subsoil with fertility. We "break the clods" not merely to favour the fine rootlets of young plants, but to expose an infinitely multiplied extent of superficies in the pulverized mould to the chemical action of the gases we call "the air." And the teachings of Jethro Tull, of Deanston Smith, and of Lois-Weedon Smith; the practice of Flemish farmers and vineyard cultivators abroad, and of market-gardeners, cottagers, and trench-ploughers at home, are all commentaries and illustrations developing the significance of the Hebrew's descriptive phrases.

And have we not a corroboration of the advantage of deep and minute tillage in the natural processes which are working around us? Have not we all seen the changed texture and productive quality of a weathered subsoil; seen the stertile clay from the deep drain moulder into manageable and wholesome soil under the culture of a single wintering: reminding us of the saying of Dr. Clarke, that "the frost is God's plough, which he drives through every inch of ground," pulverating and fructifying all?

But to come to particular examples. Mr. Hoskyns has descibed the practice of the vine-growers in Madeira, which forms a remarkable and striking lesson for us. The vine is not a native of that island; and after growing well for a few years, the fruit begins to degenerate, and makes inferior wine. The expense of new stocks being very great, as they are usually brought from the hock-vineyards of Germany, every expedient has been tried in order to postpone the evil as long as possible; but no manuring, or pruning, or attention, is of any avail; and the only remedy is found in *deep cultivation*. "I once happened," he says, "to see the process. Nearly a score of laborers, hard at work, were standing in a long trench as deep as they were tall, stocking the earth from one side and throwing it up on the other. On inquiry, they told me they were trenching *an old vineyard* for fresh planting—trenching *nearly six feet deep!* Some months afterwards, a merchant in taking me over his wine-stores, pointed out in some casks that were being broken up a mineral incrustation about as thick as a half-crown and as brittle as glass, which he called *tartrate of lime;* adding, that it was commonly deposited by the wine, especially when new. I afterwards ascertained that potash and soda existed in the deposit, Now these minerals are very deficient in the soil of the island. Here, then, was good reason for deep trenching. The vine, to supply its mineral wants, robbed the soil so fast of what little alkali it contained, that nothing but the opening of a great depth to the action of the roots would keep up the supply for many years; for the roots of delicate plants will not travel through earth that has never *seen daylight.*"

The vegetable gardens which supply Covent Garden, and other markets of the metropolis, we all know, are not only profusely manured, but deeply tilled; and in many cases the subsoil has been dug up, in the gradual course of time, no less than *four or five feet deep*, to supply the waste of mineral matter to the soil above.

In certain parts of Flanders they have a peculiar mode of gradually deepening the staple by spade-trenching: trenches being dug between the lands when sown, and the subsoil thrown over the surface. They go about two inches deeper than the cultivator has hitherto reached; and by shifting the trenches sideways each year, at

the end of a certain number of years two inches of the entire subsoil become mixed with the upper surface, and the soil is thus deepened by that amount. The same process is then repeated a couple of inches deeper still; and after four or five courses of trenching, the land is brought to a depth of 18 or 20 inches of uniform quality.

In Jersey they use a trench plough, which follows the common plough, and by means of a shelving mould-board raises the subsoil out of the furrow and throws it on the top of the just turned furrow-slice. This is done as a regular thing once at the commencement of every rotation—that is, at the breaking up in autumn for the next year's turnip fallow.

Now let us observe in these instances that the subsoil is not brought up in large masses to defy the disintegrating powers of weather and crushing implements; nor is the whole of the cultivated staple buried underneath a great thickness of the lifted subsoil, and so placed out of reach of the young plants above; neither is the subsoil merely broken and stirred, and covered again immediately by the original staple, soon to coalesce again into its former impervious condition: nor is it simply mingled partially and imperfectly with the staple, as is the case in some descriptions of subsoil ploughing. But it is lifted bit by bit, *a little at a time*, and *exposed in a granulated state openly upon the surface*, so as to be subjected to the amelorating agencies that are above ground.

And it is by appealing to long-known and well-established practices like these, that we can readily confute the objections which have been brought against trench-ploughing, and explain the causes of failure in many cases of its trial. The secret of want of success in trenching clays and strong loams, wherever it has occurred, lies, we believe in the want of judgment exercised in performing the operation, and not in any poverty or badness inherent in the subsoil. If a man will bury his fertile and highly-conditioned staple of four inches underneath half-a-foot thickness of raw unmellowed clay—thus providing for his crops a banquet of mineral food in abundance, but food uncooked and incapable of being digested by those fastidious epicures, young plants—can he expect an adequate and quick return of profit from the expensive process? But on the self-same kind of soil he knows there are cottage gardens in plenty, which are yielding richly and profitably to the deep-working spade and fork: and one of the main points in the matter has been that the deepening was gradual. Reason tells us that what the atmospheric influences, manurings, and the growth of vegetation have, in the course of time, made of four or five inches of a mass of clay, they can in the same manner make of several inches more; and this manner is by penetrating and permeating through the avenues opened by tillage. Of course, we ought not to be too wild in our expectations, or too extravagant in our descriptions of such a transformation; so that when a practical man states that "where clay land is drained, the action of the air and water passing through it so alters the very nature of the strong yellow clays, that in a few months they will become a *deep rich loam*," we may challenge the accuracy and appropriateness of the terms employed. At the Farmers' Club, Mr. Webster took this course; but in so doing he unfortunately went too far, and said that we migh expose the strongest clays to the action of the sun and air for years "and yet they never alter." Quite true that after centuries of cultivation our tenacious clays have not been rendered into friable loams; but is not the thin staple which has been cultivated mellower and of freer texture than the untilled subsoil which it once resembled? And where the tillage has been adapted to accomplish the change talked of; where it has gradually deepened the upper soil opened the subsoil by deep drainage, subsoiling, and trenching—there it is just as true that the land is made more workable, as well as richer and warmer. If any man's personal observation, or the instances we have adduced, are not sufficient to convince him, let him go to Lois-Weedon, and thrust his walking-stick into Mr. Smith's fallow intervals, or witness the easy traction of his ploughs, while in the adjoining fields four horses are turning up a furrow four or five inches deep.

GEORGE HOPPER, ESQ., OF BLACK HEDLEY.

BY THE HON. ADAM FERGUSSON.

This gentlemen was an excellent sample of the North of England yeomen. Possessed of a good property and in easy circumstances, full of all the energy, enterprise and bodily activity, which characterised the Borderers of old, and having to boot a spice of more honesty and civilisation, he secured the good will and friendship of all with whom he had to do.

He was likewise noted for some original or eccentric habits, always, however, tending to benevolent or harmless results.

About the time of my visit, he was running the gauntlet of his friends, for a joke got up at his expense. He had been met rather *mal a propos*, jogging along the highway with a comely Northumberland lass, seated on his crupper and encircling Mr. H. most lovingly to secure her seat, giggling and laughing in high glee, while Mr. H. was ever and anon jearing and ogling her over his shoulder. The simple truth was, that pitying the poor girl tramping through the mud, and well assured of the steady temper of his nag, he offered her a cast, which was very thankfully accepted; and from this unfortunate reconnoitre with a friend, the story got wind, and the laugh was raised against him.

Mr. Hopper's experienee and skill in husbandry, especially in the department of live-stock, was universally admitted, and he took pleasure in communicating information to his friends, and to give them on all occasions, a hearty welcome at Black Hedley. I had the pleasure of making his acquaintance at Parkend, the hospitable mansion of John Kidley, Esq., in 1813–14. We took kindly to each other, and I was pressed to pay him an early visit. My residence was about twelve miles from Black Hedley, and as the country was, for the most part, open and moorish, I shouldered my gun one fine frosty morning, and shot over.

Mr. H. welcomed me most kindly, and we spent a most agreeable evening, at least, so I can say for my share of it. I found that Mr. Hopper farmed largely. He was one rather famous for his black-faced sheep. For several years, he had abandoned this breed, finding more profit in the Cheviot, or rather in what is called the Tynewater. The wool of the Tynewater sheep is decidedly finer in quality. Mr. H. considerers Mr. Kidley of Parkland, and his father, to be the most extensive store-masters on Tyne and Reed waters; their clip this year must realize at least £2000. Mr. H. is an extensive jobber, and is for ever on the road. Mr. Bates of Halton, and he, frequently speculate in purchasing turnips for consumption on the ground, by sheep; choosing dry soils, such as the neighbourhood of Corby Castle, &c. In 1812–13, they purchased 3 year-old Wedders, at £1 15s. per head, and sold them to butchers at £4 6s., leaving a very handsome profit.

I find Mr. H. altogether sceptical as to a real *unfailing milking breed*. He has frequently had common Teeswater cows, who gave 30 or 40 quarts of milk per day; but he never knew any of their progeny, come nearly up to that mark.

He is not sanguine in the success of our friend Bates's Cross breed. In his opinion, *if you leave thorough bred Shorthorns*, you will find no breed, pay acre for acre, so well (*ceteris paribus*) as pure Kyloss. The Earl of Strathmore is making up a very fine herd of Skye cattle at Streathham Castle; Mr. H. saw his lordship's Steward, Mr. Dobson, sell lately in Darlington Market, a lot of 3 year-old Kyloss steers to a butcher, at 30 guineas each. These were reared upon an upland farm of rough pasture, and finished off at Streatham. Mr. H. quite concurs with Mr. Bates

in considering the qualities of a good breed to be chiefly developed when put up to be fed off for the shambles. Mr. Robson, butcher in Newcastle, who kills upon an average of twelve months, one beast a day, besides sheep, calves, &c., also coincides. Robson purchases largely from Mr. Bates, and declares the Cross breed beef to be particularly delicate and rich, and that he finds his account in giving extra prices, as a certain class of customers, are willing to pay him for it, above the ordinary market rates.

THOMAS BATES, ESQ., OF KIRKLEAVINGTON.

This gentleman, of noted celebrity as a Shorthorn breeder, farmed Halton Castle, near Hexham, at the period when I formed his acquaintance, in 1813–14. It was a very great privilege to me, and I can with truth say, that his knowledge of husbandry, was only equalled by his kindly spirit, and frank communication of valuable information. My residence was within a reasonable distance of Halton, and a kind of hearty welcome, tempted me, I fear, to trespass over much upon his hospitality. Like most men, Mr. Bates had his weak points, but he enjoyed, as he well deserved, a high character for skill, integrity and zeal, in his vocation.

About the time, when my acquaintance with Mr. Bates commenced, the manufacturers of York and Lancashire were in *full blow*, and the demand for beef of superior quality, was universal. Having this in view and entertaining a belief, that it was possible to introduce a *permanent* breed of cattle, which would be superior to Shorthorns, in delicacy of fibre, without sacrificing early maturity, dairy qualities, or any of the valuable properties of that most estimable breed, Mr. B. began to cross the Kylos cow with the Shorthorn bull. It is well known that the rule laid down by Culley, Cline and other distinguished men of sciences and practical knowledge, is to use a *small male*, or at least one of a breed, inferior in bulk to a *female*. Without disputing the accuracy of this theory, Mr. B. simply declared, that he was *determined* to have Kylos blood, on one side; and that he had failed in finding a Kylos bull, possessing these points, which he considered to be desirable. He certainly effected a great deal, and was, *for a time*, quite satisfied with the results. The Grade cows proved excellent diary stock, more especially in the article of butter. I saw one which was giving 15lb. of butter per week, but as this was ascertained from churning a portion of her milk in a bottle, I confess that it appeared to me, to be a somewhat questionable test. The great and perceptible improvement in the Grades, was in the additional depth and weight of the fore quarter.* The Kylos and Grades, are, for the most part, kept upon a moorland farm, some distance from Halton, which Mr. B. had improved by draining, pairing and burning, and laying down to pasture. Eventually, the cattle experiment failed, and was abandoned. The first cross was in general the best. *No reliance could be placed upon the progeny of Grade bulls*, and the cows, as the process advanced, step by step, reverted to pure Shorthorns. The farmers and breeders of the district, always decried them, even when they carried off many prizes, and fetched higher prices for animals of like age, but of *pure* Shorthorn *blood*. At every Agricultural meeting, Mr. Bates puts forward a challenge, offering to stake 100 guineas, against a like sum, *Grades against Shorthorns*, which no breeder was found to accept, (as they said) from the difficulty, or impossibility of coming to a satisfactory and a fair decision. That Kylos and Galloway blood, was employed by the Messrs. Collings, is beyond all doubt, though how applied, or in

* Mr. B., kept altogether, a very large breeding stock. He expects ninety calves this season, 1813–14, Pure and Grade.

what form and measure, I believe to be *absolutely unknown*. I am further inclined to consider it, as a mistake made by these clever men. The *alloy* may be traced, even at this day, in some of our highest bred stock, but which, it will be wise to regard, rather as a *beacon*, than as a *guide-post*.

Halton was the property of Sir Charles Loraine, and was entirely farmed by Mr. Bates; I believe upon a lease of 21 years. It contained a considerable portion of rich, and a yearly old pasture. This portion of the farm lay much upon a declivity, and was laid under water (catchwork) for a portion of the winter. It was thus made early, and afforded an early bite for stock. Mr. B. used it much in *finishing off* his stall-fed cattle, and always to good profit, enabling him to hit the critical period, when turnips were used up, and grass beef in ordinary pastures, was not ready. He always said, that this system paid him remarkably well.

In after life, Mr. B. purchased a beautiful estate in Yorkshire, where he pursued his course as a breeder of Durham, chiefly from his favourite Duchess tribe, which are probably unrivalled for all the valuable qualities of good Shorthorns, early maturity, &c., possessing, moreover, high claims as dairy stock, an important consideration often too much overlooked in high bred herds. Mr. B. was by no means rigid in his notions of breeding *in* and *in*. His rule was to regulate that by circumstances. So long as no degenerancy appeared in the produce, he felt no scruples on the score of affinity. At the time when I was in the habit of visiting his stock, he had two Shorthorn bulls in use. Ketton by Favourite, and Baron by Ketton, both of them very superior animals. Mr. B. valued Ketton at 1000 guineas, and declared that he was well worth that money to him as a breeder. I frequently saw the original Duchess, for whom, as a yearling heifer, Mr. B. paid 185 guineas, at the great Collings sale. To my unpractised eye, I confess she seemed to have been pretty well paid for; but I did not know then, as I do now, *that blood is all in all.*

Mr. Bates lived and died unmarried, keeping always a most comfortable bachelor's hall. Waste not, want not, was his rule, and his house-keeper, old Barbara, never failed in making her master's guests feel entirely *at home*.

THE FARMER A MAN OF TASTE.

But the farmer of to-day should be *not only* a thoroughly educated man, and possessed of sound accomplishments; he should be pre-eminently a man of fine taste. He is an indweller of Nature's Temple, and is every where surrounded by the beautiful creations of Art Supreme. Here he may take lessons from the choicest pencilings of a perfect Master. In matters of taste, order and neatness, the American farmer need be second to none; and these qualifications should be manifested in all his operations.

When I see a farm laid out without regard to order or system, the fields taking shape as the convenience of the moment might dictate, I conclude that the owner has never studied taste or economy. When I see the fences of a farm overgrown with bushes, briars, weeds, etc., it is quite clear to me that the man who "*stays*" there has very little taste, so far as his business is concerned.

When in passing the domain of a large farmer, I find his spacious dwelling and his extensive barns and stables, side by side—door-yard and barn-yard in close juxtaposition —the latter odoriferous of its fertilizing contents—I at once see that with all his acquisitions, the proprietor has neglected to store his mind with a little *humanizing taste*—a few ideas and prineiples of order and propriety—which would have put his barns and stables, with all their unpleasant accompaniments, back, in rear of the dwelling, where they belong, giving the latter prominence and character, showing that the farmer and his household believe themselves superior to the beasts of the stall, and are unwilling to live virtually in their midst.

When I see a door-yard overgrown with wild grass and weeds, the fence shabby, no flowers or trees about, I know at once that there is no taste there, in doors or out.—*Betts' Agricultural Address.*

SEYMOUR AND MORGAN'S REAPER.

Above is a cut of this excellent Machine, which is generally approved by those who have used it. It was extensively introduced into Canada last season, and is now being made by several of our own manufacturers. It is Reaper a only, and when made of good materials, we can recommend it with confidence to those whose fields are tolerably level and clear of stumps and stones.

FIELD-MICE, HEDGES, &c.

To the Editor of the Agriculturist.

Dear Sir,—I was talking the other day to a shrewd, practical old Canadian farmer—one of the very early settlers in the neighborhood—on the subject of field mice destroying the orchard trees. He suggested as a preventative, first the careful removal of straw and loose litter from the roots of young trees in the fall; substituting in lieu of the usual mulching a dressing of leached ashes, fine mould, or well-rotted manure; and as soon as the snow acquired any depth, to send a man with heavy boots on, to tramp the snow well round the tree, beating it as hard as he could with his feet. This plan would, he assured me, effectually preserve the trees from the depredations of the mice, who harbour among the loose rubbish, and work their way through the new-fallen snow. This advise, coming from an old, experienced apple-grower, and one remarkable for his general practical knowledge, I considered as valuable, and I venture to offer it, on his testimony, to the readers of the *Agriculturist.*

I have seen a mixture of tar aud lime used as a paint in the old country to prevent the ravages of hares and rabbits on young apple trees, the paint being applied with a brush to a height of three or four feet from the ground.

The practice, so universally adopted, of mulching the roots of young orchard trees with stable litter may be one fruitful source of the increased destruction of fruit trees, thereby affording shelter to vermin of this kind. The substitution of ashes and earth, to be *removed* again by the hoe in the month of May, would, I think, be equally serviceable to the tree, and not offer the same objection, especially if it were well trodden down or beaten hard with the spade.

Even if this process be a remedy for the barking of trees from mice in orchards, I fear it will hardly be available in respect to the hedge plants, as these little animals would find a comfortable shelter among the roots in the interior of the hedge, where no person could use his foot for beating down snow or earth: even were labour so cheap as to admit of time being so employed.

Mr. Editor,—Among the various shrubs and plants suggested for hedging purposes, no one has taken notice of the Prickly Ash, *(Xanthoxyllum).* This forms a thick thorny bush, very ornamental to the eye, and I should imagine, if closely set, would make a formidable barrier against man or beast. It is found chiefly in swampy grounds, but I have seen it in gardens, on dry soil, where it grew very luxuriantly. Possibly, some of your correspondents may be able to tell you more about its properties. It is a powerful tonic, the bark being used in ague by the lumbermen. In its wild state I have never seen it injured by animals. Perhaps Mr. Leslie may know something of its capabilities. My remarks are merely suggestive.

Rice Lake Plain, June 14th. *

NECESSITY OF VENTILATION.

The temperature at which the living organisation must be continuallly maintained, the physical power which enables a man to execute the decisions of his will, and the intellectual force by which he explores and controls the natural world, are all dependant upon the chemical action of oxygen, and in that exact proportion in which it is supplied by perfectly pure air. Of the two conditions of animal life, the supply of nutriment, and of oxygen to decompose it, the latter is rendered in the plan of nature by far the most immediately and directly important. A person requires food but once in several hours, and may do without it for days, but if deprived of air for as many minutes he perishes. Accordingly, while the supply of food is to be had only by forethought and with active industry, and fails if these fail, on the other hand the supply of air is as boundless and omnipresent as its connection with life is intimate and indissoluble.

The Supply of Air.—We dwell at the bottom of an immense ocean of air, which presses upon all sides of us with the weight of tons. It accompanies us into all places; unless by special arrangements we contrive to bar it out. All that the infinitely wise Creator can do he has done to supply us with this first and highest of earthly necessities. The birds of the air, the beasts of the field, and even the savages of the forest in their open wigwams, enjoy the blessing in all its beauty and fullness. *Civilized man* alone cuts himself off from the beneficent, all invigorating atmosphere, by retiring into air-tight chambers and using the same gases over and over again, as if they were a taxed commodity and he a miser. It is because the air is so abundant and all pervading, and therefore costs no exertion to obtain it, and also because it is an invisible and ethereal medium, and therefore not fitted to strike the senses like most other forms of matter, that its relations to animal life have been so recently determined, and that so little attention is paid to a copious and healthful supply of it in the arrangement of dwellings.

Effects of Breathing Air Artificially Condensed.—The foregoing views of the connection established by the Creator between the atmosphere and animal life have been admirably illustrated and confirmed by experiments, in which the amount of oxygen introduced into the lungs varied from the normal quantity. They deserve to be attentively considred at this point of the subject. By means of a suitable apparatus, M. Junot subjected different persons to the effects of a considerable variation of atmosphere pressure. "When a person is placed," says he, "in condensed air, he breathes with a new facility; he feels as if the capacity of his lungs was enlarged; his respirations become deeper and less frequent; he experiences in the course of a short time on agreeable glow in the chest, as if the pulmonary cells were being dilated with an elastic spirit while the whole frame receives at each inspiration fresh vital impulsion. The functions of the brain get excited, the imagination becomes vivid, and the ideas flow with a delighted facility; digestion is rendered more active, as after gentle exercise in the air, because the secretary organs participate immediately in the increased energy of the arterial system, and there is therefore no thirst."

An Interesting Experiment.—Similar effects have been produced in a novel way, and on a much more extended scale, upon workmen employed in a coalmine in France.—The seams of coal are situated under a stratum of quicksand, some twenty yards in thickness, which lay below the bed of the river Loire, and was connected with its waters; they were therefore inaccessible by all the ordinary modes of mining previously practised. So insurmountable was this obstacle regarded, that the coal bed, although known for centuries, had remained untouched. M. Trigger, an able engineer, at length grappled with the difficulty by sinking a shaft encased with sheet-iron cylinders or tubing riveted tightly together. The openings in the top to admit the miners were so contrived as to be closed perfectly air-tight, and into the cylinder air was driven, and sufficiently condensed by a steam-engine and forcing-pumps to repel the water and quicksand at the bottom, and thus permit the miners, who were immersed in the condensed air, to proceed with the excavation. The pressure employed was that of three atmospheres, that is, the air was made three times as dense as common air, "it infused such energy into the miners that they could easily execute double the work without fatigue that they could do in the open air. Upon many of them the first sensations were painful, especially upon the ears and eyes, but ere long they got quite reconciled to the bracing element. Old asthmatic men became here effective operatives. Deaf persons recovered their hearing, whilst others were sensible to the slightest whisper—an effect due to the stronger pulses of the dense air upon the membrane of the drum of the ear. Much annoyance was at first experienced from the rapid combustion of the candles, but this was obviated by substituting flax for cotton thread in the wick."—(*Supplement to Ure's Dictionary.*) The same encrease of muscular energy is experienced by those who descend to considerable depths in diving-bells.

CUMBERLAND HORSE BREEDERS.

The chief buyers of carriage horses at Howden Fair, are the Messrs. Wimbush, Gray, East, &c., and the most paying colour is a brown or a "Jersey bay." This class of animal does not come there so much from the county of Durham as formerly, but is principally bred in the neighbourhood of Howden and Holderness. The breeders of Durham horses confine themselves more to Northallerton and Newcastle fairs, which are also the great marts for the Cumberland men. The latter, although they kept the first and second hunter-sire prizes against all comers, with Ravenhill and British Yeoman, and made the other horse-classes considerably less of a dead letter than they had hitherto been, at the last Royal Agricultnral Show, breed almost solely for the carriage, and hence it is next to useless to bring a chesuut horse, however fine his points, into the county. When Mr. Richard Ferguson, the owner of Ravenhill (who has been rechristened "Royal Ravenhill," in token of his triumph), introduced a coaching-sire some six-and-thirty years ago, he was assurred by his neigbours that the climate was too cold either for pure shorthorns or anything in horses shape, that was more than half-bred, and it was only when he sold a pair of his four-year-old Candidates for £150, which shortly afterwards reached the King's stables for, as it was said at the time, £300, that a contrary conviction dawned on them. Candidate, Bay Chilton, and Grand Turk, who were all "Northern Lights" in their time, had very little blood, but were fine sturdy specimens of a species of Durham or rather Yorkshire coaching-horse, which is now almost entirely superseded by thoroughbreds. In size they were a medium between Magog and Lord Fauconberg, and none of them were certainly up to more weight than Meteor; but perhaps the finest type of a coach-horse we ever saw was a brown one by Screveton. Mr. Charles Philips, of Cracrop, in Cumberland, is perhaps the most successful English breeder of the pure Clydesdale cart-horses; and one of his two-year-olds was so much prized when he arrived in Canada that he was sold at 4s. 8d. per lb., and realized upwards of £4000 on his weight. This is Mr. Brigg's querist over again, "How much a pound if I take the whole of him?" — *From "The Post and the Paddock;" by the Druid.*

NEW EXPERIMENTS IN CHURNING CREAM.

[Our readers are aware that we do not usually attach great importance to "theories," (as the term is commonly understood) until they are tested by practical trial. We insert the following for the experiments it details in connection with the suggestions of theory, and invite attention to the subject.]

Mr. E. Conklin writes to the *Country Gentleman* as follows:—

I have something amusing to tell you, to set you to thinking of a new theory of churning, and should you approve of the theory perhaps your lady readers would be gratified at the prospect of getting the long-looked-for, perfect churn. The thought occurred to me that to rupture the globules of cream perfectly and expeditiously, it should be done by a force-pump, ejecting a stream of 3-16, or 1 4 inch with great velocity, against a hard substance, or into itself. Much to the amusement of my family for trying to do that which thousands have failed doing, I procured a pint syringe and a quart of cream, and commenced squirting it into itself; when, lo, the butter developed itself shortly. I then borrowed a little force pump, and again succeeded. I then had a tin pump, 2½ inches diameter, 11 inches long, made, and gave it a good trial. I found the cream would soon break, but that it required a common churn to finish it by aggregating the butter as a gatherer. I have concluded, my plan is to provide for all churns, a breaker, thus performing much the most important labour, and greater production. My theory is, to rupture the globules by a sufficient concussion in once passing the cream through, by giving it sufficient force, ejecting the stream of cream against a hard substance, or into itself. I thus get all the butter in a much shorter time.

I propose to have got up a breaker by itself separately, or to be added to present churns; if made separately, have a single force-pump attached to a board or frame, under which place the crock of cream to be broken; pass the cream from the pump into churn.

Our present churns are good gatherers, but all churns to be perfect, must have a breaker to do the main work. The present mode of churning is a good deal like taking a stick to break a pile of walnuts; one nut protecting the others from concussion, render it tedious and imperfect. The present dashers produce insufficient concussion to expeditiously and perfectly break the globules; hence less product of butter, and constant disaffection with all churns.

CLEAN YOUR CELLARS.

By a beneficial arrangement of Providence, gasses and odours most prejudicial to human life are lighter than the air which surrounds us, and as soon as disengaged, rise immediately to the upper atmosphere, to be purified, and then returned to be used again.

The warmer the weather, the more rapidly are these gasses generated, and the more rapidly do they rise. Hence, it is, that in the most miasmatic regions of the tropics, the traveller can pursue his journey at mid-day, but to do so in the cool of the evening or morning, or midnight, would be certain death.

Hence also, the popular, but too sweeping dread of night air. To apply this scientific truth to practical life in reference to the cellars under our dwellings, is the object of this article.

In the first place, no dwelling-house ought to have a cellar. But in large cities, the value of the land makes them a seeming necessity, but it is only seeming, for during many years residence in New Orleans, we do not remember to have seen half-a-dozen cellars. But, if we must have them, let science construct them in such a manner, and common sense use them in such a way as to obviate the injuries which would otherwise result from them.

The ceilings of cellars should be well plastered, in order most effectually to prevent the ascent of dampness and noisome odours through the joints of the flooring.

The bottom of the cellar should be well paved with stone; coble stones are perhaps best; over this should be poured, to the extent of several inches in thickness, water lime cement, or such other material as is known to acquire in time almost the hardness of stone; this keeps the dampness of the earth below.

If additional dryness is desired for special purposes, in parts of the cellar, let common scantling be laid down at convenient distances, and loose boards laid across them for convenience of removal and sweeping under, when cleaning time of the year comes.

The walls should be plastered, in order to prevent the dust from settling on the innumerable projections of a common stone wall.

Shelves should be arranged in the centre of the cellar, not in the corners or against the walls; these shelves should hang from the ceiling, by wooden arms, firmly attached before plastering, thus you make all free from rats.

To those who are so fortunate as to own the houses in which they live, we would recommend the month of June as the appropriate time for following these recommendations.

Let everything, not absolutely nailed fast, be removed into the yard, and exposed to the sun, and if you please, remain for a week or two, so as to afford opportunity for a thorough drying.

Let the walls and floors be swept thoroughly, on four or five different days, and let a good coat of whitewashing be laid on.

These things should be done once a year, and one day in the week at least, except in mid-winter, every opening in the cellar, for several hours, about noon, should be thrown wide, so as to allow as complete ventilation as possible. Scientific men have forced on the common mind, by slow degrees, the importance of a daily ventilation of our sleeping apartments, so that none but the careless or the most obtuse neglect it; but few think of ventilating their cellars, although it is apparent the noisome dampness is constantly rising upwards and pervading the whole dwelling.

Emanations from cellars do not kill in a night, if they did, universal attention would be forced to their proper management, but it is certain, from the very nature of things, that unclean, damp and mouldy cellars, with their sepulchral fumes, do undermine the health of multitudes of families, and send many of their members to an untimely grave. Especially must it be so in New York, where the houses are generally constructed in such a manner that the ordinary access to the cellar for coal, wood, and vegetables, etc., is within the building, and every time the cellar door is opened, the draught from the grating in the street drives the accumulation of the preceding hours directly upwards into the halls and rooms of the dwelling, there to be breathed over and over again, by every member of the household, thus poisoning the very springs of life, and polluting the whole blood.

With these views we earnestly advise our city readers, as a life-saving thought, in the selection of a dwelling for the ensuing year, to give ten per cent. more for a home which has a model cellar; you will more than save it in the doctor's bills, in all probability, to say nothing of taking pills, and drops, and bitters, and gin, from one month's end to another.—*Hall's Journal of Health.*

Canadian Agricultural Exhibition.—The Lower Province holds its exhibition at Three Rivers, on the 16th of September; and the Upper Province at Kingston on the 23d. The New York is on the 30th of September, at Watertown, thus affording an opportunity for breeders and implement makers, in this State and in the Canadas to exhibit at all of these exhibitions, of which many will doubtless avail themselves. The Scientific Association meets in this city the third week in August, and we understand the Agricultural Associations of Canada intend to extend invitations to the distinguished gentlemen who may be present, especially those from Europe, to attend their exhibitions; a like invitation will be extended by our Society.—*Trans. N. Y. State Soc.*

Novel Seed Planter.—By George A. Meacham, of New York City.—This is a seed planting contrivance which is attached to the heel of one's boot, and is so arranged that by the act of walking, the grain is dropped and planted in the ground. The seed is contained in a belt worn round the waist. A flexible tube conducts the seed down to the planting apparatus. Farmers may henceforth dispense with their cumbrous planting machinery. To plant their crops they will only need to slip on a pair of these magic boots, and leisurely stalk over the soil. Horses feet may be supplied with shoes of the same sort, and the animals thus become converted into four-legged, self-moving seed planters. Verily the march of improvement is onward.

The Best Hedge in the United States, says the *Genesee Farmer*, extends about a mile along the highway, on a plantation of three hundred acres, near Augusta, Georgia. It is the Cherokee rose, which is now in full bloom, presenting a magnificent spectacle, and filling the atmosphere with delicious perfume. No animal without wings can get over or through it. Having stood forty or fifty years, it still promises a good fence for a century to come.

Effects of Cleanliness.—Count Rumford, the celebrated practical philosopher, whose writings have been of greater value to mankind, than the abstruse speculations of a host of metaphysicians, thus describes the advantage of cleanliness:—

With what care and attention do the feathered race wash themselves, and put their plumage in order; and how perfectly neat, clean, and elegant do they appear. Among the beasts of the field we find that those which are the most cleanly are generally the most gay and cheerful, or are distinguished by a certain air of tranquility and contentment, and singing birds are always remarkable for the neatness of their plumage. So great is the effect of cleanliness upon man, that it extends even to his moral character. Virtue never dwelt long with filth; nor do I believe there ever was a person scrupulously attentive to cleanliness, who was a consummate villain.

Mother.—How sweet the reflection in after years of a mother's tender training. It were well that to a mother this duty were confided, if it were only for the delicious pleasure of musing on it after many years of struggle with the cold realities of life.—Who is there that finds no relief in recurring to the scenes of his infancy and youth, gilded with the recollection of a mother's tenderness? And how many have nobly owned that to the salutary influence then exerted they must ascribe their future success, their avoidance of evil when no eye was upon them, but when rested on the heart the warnings, the prayers, and tears of a mother.

Daughters.—There is nothing more desirable in a daughter than a intelligence joined to a gentle spirit. The mind is fashioned and furnished in the main at school. But the character is derived chiefly from home. How inestimable is the confidence of that mother in producing kind feelings in the bosoms of her children, who never permits herself to speak to them in a loud voice, and in harsh, unkind tones.

To Take Ink Stains out of Linen.—There are various chemicals capable of extracting ink stains from linen, but the most simple and convenient, when the stain is comparatively fresh, is the juice of lemons, applied to the spots, then washed out with warm water Some use common salt with lemon juice, but this is of no use unless the salt is decomposed by the citric acid of the lemon uniting with the soda of the salt, thereby setting its chlorine free, which is a most powerful bleaching agent.

Lemon juice was long used (and is by some yet) by straw hat bleachers, for removing iron stains from leghorn hats, but oxalic acid has nearly superseded it. The latter is much superior, but is dangerous to keep in families where there are children, as it is a poison. Muriatic acid (old spirit of salt) is a more powerful extractor than either citric or oxalic acids, but it is unsafe in the hands of others than experts.

RESTORING FRUIT TREES DESTROYED BY MICE.

It is not as extensively known, as it ought to be, that young fruit trees can be restored to full life and vigor after the bark has been stripped off all around their stock by mice. Last winter being unusually long, and severely cold weather, and the ground covered with snow for several months, it was evident, as soon as the snow had disappeared, that these little pests had made sad destruction among the shrubbery and young fruit trees generally.

In a little orchard of thirty trees which I had planted, of the best seclected fruit, and had cultivated and trained with much care for six years, until they were beginning to bear, I discovered in the spring that the bark was completely stripped off nine trees, all around the stocks close to the ground, varying in width from three to six inches. I at once banked the earth around them, so as to protect the exposed wood from the weather. In the course of six weeks after, when the uninjured trees were beginning to put out their leaves, I concluded to try an experiment, and to endeavour to restore those trees that were injured. Four of them I operated on in this way: I took a straight limb of an inch diametr, from an older tree, and cut off pieces of such a length as to reac the sound bark above and below the injured part I then split off slabs of about three-eights of an inch thick, with the bark—being careful not to injure the bark. These I fitted nicely into the stocks of the trees—the ends of the girdled bark fitting close, so that the connection was formed, and the sap conveyed past the injured parts.

The other five trees were so badly stripped that it required strips of from six to eight inches in length to form the connections. These I treated differently. I took young sprouts of less than half an inch thick, beveled the ends and then raised the bark of the trees with a sharp instrument, and inserted the ends of the sprouts in the incision, and then applied plenty of grafting wax to the injured parts. When this was done, I again banked the earth around them, and applied plenty of water to moisten it well. In less than a week the buds were perceptibly swollen; they afterwards put out leaves, blossomed, and the young fruit bids fair to come to come to perfection. They are all flourishing equally well with the others, and no person could tell from their appearance they had been injured in any way.

To save the trouble of thus doctoring trees, it would be well to apply tar, or any other preparation that would be offensive to the mice, about the roots of trees at the approach of winter.

Machine for Blacking Boots.—Ayckbourn, of London has invented a machine for the foregoing named purpose. It is made of a framework of wood, with concave brushes on spindles surrounding a step on which the boot is placed. A trough containing blacking is set beside each brush to supply it, but which are moved out of reach by touching a rod when sufficient blacking is put on. The brushes are made to do their work of blacking and polishing, by simply turning a crank handle, by a person while standing. He has but to place his booted foot on a step and turn a crank, and by a few whirlabouts, his boot from a muddy brown hue, will be developed into a black shining mirror.

Washing Silver Ware.—It seems that housekepers who wash their silver ware with soap and water, as the common practice is, do not know what they are about. The proprietor of one of the oldest silver establishments in the city of Philadelphia, says that "housekeepers ruin their silver by washing it in soap suds; it makes it look like pewter. Never put a particle of soap about your silver; then it will retain its original lustre. When it wants polish take a piece of soft leather and whiting, and rub it hard.

If one ounce of powdered gum trajacanth, in the white of six eggs, well-beaten, is applied to a window, it will prevent the rays of the sun from getting in.

Cheap Cake.—One cup of sugar, one of buttermilk, two ounces of butter, one teaspoonful of saleratus, one essence of lemon; stir in flour till quite stiff; beat the mixture well before baking.

White Cake.—One and a half cups of sugar, one of milk, two of flour, four tablespoonfuls of butter, one teaspoonful of cream tartar, one-half do. of soda; the whites of three eggs.

Cookies.—One cup of butter, two of sugar, two eggs, one teaspoon of saleratus dissolved in two tablespoons of milk.

PRUNING AND CARE OF FRUIT TREES.

The proper season for pruning fruit trees is still a disputed question. Some of high authority, contend it should be done in mid-winter, or at any time when vegetation is not in progress. Others claim that the only proper season is when the sap begins to flow freely in the spring, and before the buds have become fully developed. A third class, among whom we must rank ourselves insist that should be done after that period, when the excessive flow of thin and watery sap has subsided, and the leaves have fully matured, which happens in this latitude, from the 20th of June to 15th of July. For this last opinion, there are two important advantages: 1st. There are no obstrusive young shoots pushing themselves forward where the branches are lopped off, as at other times: and 2d, the wounds made in pruning are immediately covered with a thick gummy sap, which, by effectually shutting up the pores of the wounded limb, secure a rapid healing of the part, and a re-covering by the extension of the bark from every side till it meets and is effectually joined in the centre. These reasons are conclusive with us, and we think should be so with our readers, until they show some better for the contrary practice.

The cause assigned, for the effectual protection and speedy recovery of the maimed part, by some, who have supposed they were speaking philosophically on the subject, is altogether a mistaken one. They assume two distinct periods during the existence of the summer foilage, one the ascent, or upward flow of the sap; the other its downward course, or descent to the roots. Let us correct this misapprehension here. The sap *circulates* throughout the entire length and breadth of the tree, from the minutest spongioles of the root, invisible to the naked eye, up to the farthest point of the topmost leaflet; just as the blood courses through the animal system. In the tree, the leaves are the lungs, the principal respiratory organs that change the character of the fluid, giving out oxygen and inhaling carbon from the atmosphere; though the bark of the fresh shoots performs this office to no inconsiderable extent, and at all times, at every period of the tree's life, there is an intimate and vital connection of the bark with the surrounding air, perspiring its sap and imbibing a portion of the atmosphere; an operation, analogous to the functions of the skin in the animal system. This constant circulation of the sap is a law so irrevocably fixed upon the living tree, that even in mid-winter, when not absolutely arrested by congelation, it still circulates; changes are still in progress within the trunk and branches, and the air from without is constantly affecting some alteration in the condition of the vital fluid. *Life* still manifests itself, and like every other living thing endued with this inscrutable principle by its Maker, it is incessantly occupied in the exercise of its peculiar functions. But though the sap is constantly *descending* as well as ascending, it descends in a very much diminished quantity, owing to the escape of moisture through the leaves and branches. The *exchange* of oxygen for carbon is equal in *quantity*. but owing to the evaporation, the downward current is not only less but different in quality, is of a thicker and more viscid consistence, and the volume is rendered still less in every successive advance it makes towards the roots, as it is constantly appropriated between the inner bark and the alburnum or outward wood, for the future growth of the tree.

Notwithstanding the much more favorable condition for healing, when trees are pruned at the proper season, it is well, especially when large limbs have been cut off, to apply a salve or dressing to the wound. We give for this purpose the following composition: ½ lb. tallow, 2 lbs. tar, and 1 oz. saltpetre, thoroughly mixed while warm; or equal parts of clay and fresh cow dung with strong fresh ashes added to the mixture; or tar and brick dust.

Light American plows have superseded the heavy Scotch plows in Malta. They were introduced recently by the Governor, Sir Wm. Reid, formerly of Bermuda.

Loaf Cake.—One pint of bread sponge, one cup of sugar, one of butter, three eggs, one tablespoon of saleratus; spice to the taste. Mix thoroughly, but not very stiff, and bake when light. It is much improved by adding raisins.

To Make Fruit Pies.—No under crust should be made to apple or any fruit pie. It is always heavy and not fit to eat. Place a narrow rim of paste around the edge of the plate, and fill with the fruit either raw or stewed, and cover it. The juices will be retained much better, and it will save a sight of butter and flour, which is no trifling consideration in these days, and what is of more consequence, save *dyspepsia*, which costs more. After cutting, they are taken out with a spoon.

GOURDS AND PUMPKINS (CUCURBITA, OF MANY SPECIES AND VARIETIES).

Pumpkin-pie is a favourite with many of our peasantry; but its real merit, like that of stone or flint soup, lies in the ingredients that are added to it. Vegetable marrow (*Coucourzelle a la moelle* of the French) is the most relished of its class as an an esculent in England, and that only in its green or half-grown state. In vain will Mr. Cuthill recommend it ripe; people's palates are even harder to convert than their hearts and minds. "After two years' trial," he says, "of ripe vegetable marrow as food, having used it with all sorts of meat, I can confidently recommend it as a first-rate winter vegetable. Many object to eat it in a ripe state, and it may be many years before it receives universal acceptance as a winter vegetable; but in this it only shares the fate of many other things now common on our dinner-tables. The potato passed through the same ordeal; many a weary day did this valuable tuber struggle for a place. When ripe, vegetable marrows must be stored in a dry place, from which frost is excluded. The under-ripened ones should be used first. In boiling ripe marrows, cut them up into pieces of four or five inches in length; take out the pith and seeds, but do not remove the skin before boiling. Then boil in plenty of water with a little salt. After three quarters of an hour's sharp boiling (this depends upon its ripeness), let the pulp be scraped out into a dish, and press out all the water that it has imbibed during the process of boiling. Add pepper and salt, and mash as with turnips; and no one who has not tried it can have any idea what a fine winter dish it makes. To captains going long voyages it would prove most valuable. Vegetable marrow in its young state, makes famous pickle. Cut it into two or three inches in length, as cucumbers are served." In Italy, young marrows and other immature gourds, are split or sliced, and fried with the skin on, when about three or four inches in length. The skin thus becomes crisp, and the flesh really acquires a marrow-like consistency. Throughout the same part of Europe, gourd-seeds are used in cakes and confectionary, as we should almonds. At Naples, the pormaeteau gourd, or Naples gourd, a large cylindrical fruit, more than half a yard long, is simply cut in halves, baked in an oven, and then eaten cold in slices.

But, with the exception of the vegetable marrow, pumpkins and gourds may be regarded in England as plants rather of ornament than of use. They require an inconvenient extent of space; but their luxuriant vines, their bold foliage, and their noble-looking fruit, afford powerful elements of decoration in the hands of those who know how to use them. The potiron jaune, or mammoth gourd, attains an enormous size. (If monsters are wanted, only one fruit should be allowed to each plant). The writer had one presented to him which filled a donkey-cart. The orange gourd, both smooth and warty, make pleasing chimney ornaments; as also does the pear-fruited gourd, with its shining green and yellow skin. The snake cucumber is an extraordinary plant, producing green vegetable serpents from three to six feet in length. The club gourd, a favourite with the Venetians, bears bludgeons a yard or more in length; while our American relations delight to cultivate a variety of vegetable marrow called the crook-neck, which has small yellow slightly warty fruits, bent in two almost at right angles at one-third of its length. The bottle gourd actually supplies drinking vessels. The Turk's cap is a faithful imitation of a turban, besides being one of the best to eat.

Gourds are safest sown, each seed in a separate small pot, in a frame or hotbed, some time in March. The plants must be gradully hardened by giving them air as often as genial weather permits. At the beginning of June, they may be turned out with the balls entire, and protected by a hand light, or oil-paper cap, till the summer heats cause them to luxuriate in rampant growth. Windy exposures are most unsuitable, on account of the breadth and tenderness of the leaves. Abundant supplies of tepid water may be given. Some gardeners throw earth over the principal stems after they have grown to any considerable length. Roots shoot forth at the joints so buried, and the fruit derives benefit from the additional nourishment. When gourds are made to climb over walls and arbours, the same object may be attained by passing the leading shoots through a concealed pot of rich earth.—*Irish Farmer's Gazette.*

Stewed Celery.—The Horticulturist recommends highly stewed celery. Cut the blanched or white portion of the celery stalks in pieces about an inch in length, and put them in a saucepan over the fire, with milk and water, in equal proportions, barely sufficient to cover them; add a little salt and let them stew gently, until perfectly tender. Then take out the celery, add a piece of butter to the liquor it was boiled in, thicken it slightly with flour, pour it over the celery, and serve it up.

ELECTRICITY THE CAUSE OF WATERSPOUTS.—A NEW THEORY.

Two violent currents of air meeting at an angle cause a vortex, and form a hollow vertical whirling tube, sucking up within its folds heavy objects, and carrying them, sometimes, to a great height. On a minor scale, these may be observed on a dry, windy day, in the shape of dust-whirls, on any public road. Heretofore, waterspouts have been attributed to such a cause—two intense angular currents of air meeting, and forming a huge vortex on the face of the ocean, lifting up the waters, as it were, by a huge hollow screw of wind, thus forming the waterspout.

Dr. M. F. Bonzono, of the U. S. Mint, New Orleans, goes deeper into the subject, and presents the following new theory of the cause of waterspouts, and he backs it up with good arguments:—

"From the conductor of an electrical machine suspended by a wire, or chain, a small metallic ball, (one of wood covered with tin foil,) and under the ball place a rather wide metallic basin, containing some oil of turpentine, at the distance of about three-quarters of an inch. If the handle of the machine be now turned slowly, the liquid of the basin will begin to move in different directions, and form whirlpools. As the electricity on the conductor accumulates, the troubled liquid will elevate itself in the centre, and, at last, become attached to the ball. Draw off the electricity from the conductor to let the liquid resume its position: a portion of the turpentine remains attached to the ball. Turn the handle again very slowly, and observe the few drops adhering to the ball assume a conical shape, with the apex downwards, while the liquid under assumes also a conical shape, the apex upwards, until both meet. As the liquid does not accumulate on the ball, there must necessarily be as great a current downwards as upwards, giving the column of liquid a rapid circular motion, which continues until the electricity from the conductor is nearly all discharged, silently, or until it is discharged by a spark descending into the liquid. The same phenomena takes place with oil or water. Using the latter liquid, the ball must be brought much nearer, or a greater quantity of electricity is necessary to raise it.

Those who have had occasion to observe the sublime phenomenon of a waterspout will at once perceive, in this experiment, a faithful miniature representation of the gradual formation, progress, and breaking up of that grand phenomenon.

If, in this experiment, we let the ball swing to and fro, the little waterspout will travel over its miniature sea, carrying its whirlpools along with it. When it breaks up, a portion of the liquid, and with it anything it may contain, remains attached to the ball.—The fish, seeds, leaves, &c., that have fallen to the earth in rain squalls, may have owed their elevation in the clouds to the same cause that attaches a few drops of the liquid, with its particles of impurities, to the ball.

It is well known that waterspouts generally form on hot summer days in southern climates, and in so-called dead calms. They never form on windy days, nor in rainy weather. If, in our experiment, we blow upon the surface of the liquid, the discharge of electricity from the ball will be so much facilitated as to prevent the elevation of the liquid entirely, or, at least, to retard it very much. By holding a pointed conductor near the liquid, the elevation of it is entirely prevented. It seems not a forced deduction that lightning rods, and not the firing of cannon, are the proper safeguards against the formation and disastrous effects of waterspouts. When we contemplate the effects of electrical attraction on liquids, our attention is naturally drawn to its effects with regard to gases, and especially atmospheric air. The non-conducting air will, like other fluids, be attracted, electrified and repelled, to seek its dissimilar electricity, giving rise to currents and counter-currents, and at the electrical machine to the phenomenon known as the electrical wind, whilst by the operation of the grand electrical machine of the clouds, it produces those fearful and destructive currents known as whirlwinds and tornadoes.

The table lands of Mexico are never wetted by rain, and but very sparingly by dew. It is in these elevated and dry regions that whirlwinds are most frequent. Waterspouts and whirlwinds seem to be the lightning rods that nature constructs to afford to the electricity of the clouds a passage to the earth"

The wear and tear of English railroads is great; it takes 20,000 tons of iron every year to keep the tracks in repair, and 26,000,000 sleepers, to furnish which requires 3,000,000 trees, covering a space of 50,000 acres.

BONES,

When ground to dust, form a valuable manure, as they supply the phosphate and carbonate of lime essential for our cereal plants. 400 pounds of bone will furnish acid to eight acres, or 50 pounds to an acre.

A bushel of bone dust will weigh about 54 pounds.

In Great Britain they apply as much as 20 per cent. per acre to their turnip lands.

As a top dressing to pastures, 200 pounds per acre are sufficient.

Bones should be collected on every farm, and may be dissolved readily and converted into manure thus: Make a basin of ashes in any convenient place, into which put the bones: then to six quarts of sulphuric acid (vitriol) add six quarts of water. Sprinkle this mixture over the bones, which will soon become soft; cover them with the ashes, and spade them well together in one uniform mass.

MR. J. B. LAWES AND AGRICULTURAL CHEMISTRY.

In an official report in regard to agricultural products, &c., at the Universal Exhibition in Paris, Mr. J. E. Denison, M.P. and Vice President of the International Jury, uses the following just and discriminating language in regard to one who has rendered most valuable services to the cause of agricultural improvement: "In speaking," says Mr. D., "of the progress of agricultural chemistry, the name of Mr. Lawes must be placed by English farmers, in the first place of honor. Without entering on the high controversy between Baron Liebig and Mr. Lawes, lately revived with increased animation, the English farmers have wisely accepted the teaching of Mr. Lawes, based on experiments, in the care and accuracy of which full reliance may be placed, and the results of which are open to the view of all. They have learned that the approved artificial (concentrated) manures are not mere stimulants, but agents of fertility, which, when properly applied, may be depended upon with certainty to produce a crop. The principles on which the growth of corn (grain) depends, are better understood. The repetition of corn (grain) crops on the same soil can no longer be considered as necessarily faulty in principle, and to be unconditionally condemned. It is rather a question of expediency, to be decided by the costs of manure and of produce. These lessons the English farmers have learnt from Mr. Lawes. They have accepted them with becoming gratitude. They are practising them with increasing confidence, day by day, to their great and proved advantage."

Mention is also made of a series of experiments by Mr. Lawes, on the laws concerned in the feeding and fattening of animals, and in regard to these experiments Mr. Denison, with due candor and appreciation, remarks as follows:—"The numbur of animals experimented upon, the intelligence and care brought to bear upon every detail, and the very considerable expenditure which has evidently accompanied them, place these investigations far in advance of any of a similar kind that have been undertaken elsewhere. Although the results are of a practical character, the experiments of Mr. Lawes must not be classed with the very numerous trials on the feeding of animals, that are to be found dispersed through agricultural publications, and which are *merely* practical, being undertaken without reference to *general principles*." The results of Mr. Lawes' inquiries are too numerous to be stated here; but they seem to point out that a just balance of the different constituents of food is of more importance than a predominance of any one; that neither the albuminous nor the farinaceous elements have an exclusive value; and that those vegetable substances which contain the most nitrogenous matter are not necessarily the most adapted to produce growth of muscle, as is generally thought. Moreover, according to Mr. Lawes the valuation of foods by the amount of nitrogen contained in them is attended with much fallacy. These labors of Mr. Lawes certainly entitle him to gratitude and honor.

To Make Pure Wine of Apples.—Take pure cider made from sound ripe apples as it runs from the press. Put 60 pounds of common brown sugar into 15 gallons of the cider, and let it dissolve; then put the mixture into a clean barrel, and fill the barrel up to within two gallons of being full with clean cider; put the cask in a cool place, leaving the bung out for forty-eight hours; then put in the bung, with a small vent, until fermentation wholly ceases, and bung up tight, and in one year the wine will be fit for use. This wine requires no racking, the longer it stands upon the lees the better.

MANURING ORCHARDS.

When orchards bear profusely, or the soil through which their roots extend, yields crops which are removed from the ground, the trees ought to be supplied with an ample dressing of manure, as often, at least, as once in four or five years. We think, however, a better way is to allow the orchard to take its place in a rotation. Unlike many others, we would not object to occupying the ground with any particular species of vegetation, but, let it be potatoes, corn, wheat, or oats, as the soil or the judgment of the owner may dictate. But we do insist that where an exhausting crop has been taken, ample compensation in manures should be made, for the exhaustion thus occasioned.

It is better, however, as a general rule, that orchards be plowed only in their younger days, before their tops become much developed; then put the ground in the highest condition of fertility, and lay it down to grass, and invite the extremities of the outspreading, pendent branches to fall as low as the ground, if they should prefer. This greatly facilitates and economizes harvesting when fruit is hand picked, as all valuable fruit should be, and the grass may be equally well secured under such trees, as when the branches are more elevated. We admire a luxuriant orchard, with its broad, umbrella top sweeping the ground when loaded with rich, blushing fruit, and no fields can be better occupied than with such a harvest, if the varieties are well chosen, and the trees have received the proper care.

If the orchard is in a meadow, and the grass and apples are annually removed, the leaves will of course follow them, as soon as the autumnal blasts or wintry winds sweep over the smooth surface, and thus is the ground robbed of all the vegetable matter to which it has given life through the season. Were the orchard is well protected as the forest, by its numerous low swales, fallen branches, or upturned trunks and roots, and the innumerable standing trees, the decaying leaves and branches, and fallen trunks would restore to the soil all it had abstracted; but in the absence of these its natural manures it must receive others or starve.

Ashes are one of the best applications for an orchard; so, also, is swamp muck, or a compost of barn yard manure; charcoal is excellent, as is also lime, and occasionally bone dust, plaster, and salt, each of which is appropriately applied around the roots. Scraping the trunks when they become unthrifty, mossy, or hide bound, and washing with strong soap suds or wood ashes ley, and then give a strong coat of whitewash, are attended, with the best effects. These act both as manure and destroy insects and worms.

To Prevent Cows from Kicking.—Mr. Editor—One of the trials or vexations that dairymen *have* to be subject to, is kicking cows. From the removal of calves from their mothers, chaped teats, and bad dispositions, it may be safe to say that no dairyman gets through the milking season without encountering this annoyance. Any method therefore that will save the poor cows the cruel knockings, kickings, and hard names, that they frequently on such occasions, or even the more moderate system of a "single blow, with time for reflection," as recommended in the "*Cultivator*," a few years ago, is at least worthy of trial.

Cattle are, in some respects, like some human beings: they will do more to gratify a *bad* disposition, than to comply with wholesome discipline; hence it will be found very difficult to find a remedy that will apply equally well in all cases. The following method will perhaps approach as near perfection in that respect as any that can well be hit upon. It has at least humanity to recommend it. Cause the cow to stand upon *three legs* during the operation of milking. This may be done by simply noosing a small cord around the fore foot, and bringing it up to the body, and wrapping the cord twice around the leg above the upper joint, and tucking the end under, or which will do about equally well, fasten the chain or tie rope to the manger or stancheon about two feet from the floor, and then hang the fore leg across that.

The next best method perhaps is the old English "cow tye," which is nothing more than a soft rope about 2 inches long, with a noose at one end and a wooden tie on the other. Wrap this around the slender part of the hind legs and cross it once or twice between, so as to make it lap tight, and it will generally, in a short time, make a cure.—*Country Gentleman.*

ENEMIES OF THE FARMER.

Geese in the grass or cabbage.
Turkeys in the grain.
Poultry at seeding time.
Hawks among poultry.
Robins in fruit season.
Orioles.
Cedar-birds.
Meadow-mouse, to trees under snow.
Black Gum on cherry trees.
The Slug on fruit trees, especially the cherry.
Curculio. Jar the trees; the insects will fall on any article prepared to receive them; then crush them.
Peach Worm; attacks the young tender bark at the foot of the tree. Thrust in a probe and destroy the worm; boiling water kills it.
Borer, in the apple and quince tree: kill by a wire.
Wire Worm is annoyed by plaster and lime; but worm is disturbed by salt.
Turnip-Fly; steep the seed in train oil.
Hessian Fly.
Wheat Fly.

Distribution of Plants.—It would be an instructive as well as interesting occupation, to trace in detail the effect of this and other climatic condition upon the several plants which occur in particular regions or countries; but, after having exhausted all our ingenuity in referring their range and distribution to the influence of one or more of such causes, much, it will be apprehended, will remain unaccounted for, and an ample margin left for further speculation. It is difficult, for instance, by any such considerations to explain why all the Heaths, excepting five or six European species, come from the Cape; whilst the Epacrisis, a nearly allied family, are confined to Australia; why the Orange tribe is derived exclusively from China or India; why the whole of one particular division of syngenesious plants—those which are called bilabiate—proceed from South America; why so large a proportion of the Passion-flowers are natives of the New World and nearly all the Roses of the Old. The exceptions, indeed, which occur to the generality of these observations, do but enhance our perplexity. Had the whole of one family been circumscribed within certain geographical limits, it might have been surmised that there was some yet undiscovered condition in plants of similar structure indigenous in continents so disconnected from the one which harbours the greater number of species: it becomes difficult to believe that climate can have anything to do with the matter.—*Popular Geography of Plants.*

Common Soap.—To make excellent soap for common use as you must have good ashes, and put them in hoppers or barrels, on a thick layer of straw, adding a half bushel of lime to a common sized hopper; wet the ashes for several days to let them rot; then run it through, and it will be strong; put it in your kettles and boil it, and fill it up for two or three days, or till you can skim up thick potash, that looks like dirty salt, then take out one-fourth of the lye and potash, and set it aside. Now get your grease, and put in the the coarsest skins of bacon, bones, &c., you have, and the lye will soon eat them up. If clear grease rises on the top, lade it off till it eats up all the bones, &c.; then, if there are any left, take a large fork and pick them out, and throw them in the other kettle of potash; then add the pure grease you dipped off, to make the soap so mild that it will not quite take the skin off your tongue; try and see if it lathers well, then stir it in an hour, and make the other kettleful in the same way, and it will be hard, so you can cut it out when cool. I you now wish to refine some, put in a pailful of brine in a clean kettle, and dissolve ten pounds or so in it, stirring it till it boils; then let it cool in the kettle, and cut it out and dry.—*Ohio Farmer.*

ROOT CROPS—TURNIPS.

As the period for turnip sowing is now at hand, we subjoin a few sensible observations on the subject, which we find in the Rural New *Yorker* of 3rd May:—

There are many varieties of turnips cultivated by our agriculturists, of which, two species, the Swedish or ruta-baga and English or flat, receive the most attention. Of their utility as provender for stock, it is not our purpose to speak, but rather to give a few practical hints relative to culture &c.

In the selection of seed for this crop, certain questions arise which should have the careful consideration of the farmer. Which variety will give the largest yield, and at the same time furnish the greatest proportion of nutriment for the amount of soil under cultivation? Which, for the uses intended, will be most economical?

The Swedish turnip is the most valuable to the stock raiser for late feeding, and has this great advantage over all others—the easiness with which it can be preserved. In a rotation of crops, the best time to sow would be after wheat or corn—in a new soil or newly turned pasture the largest yield might be obtained.—The Swede is a rank feeder and delights in a rich, deep soil. To attain perfection, the land must be in this condition. If the ground be heavy, ridge slightly where sown, and deposit the seed in drills about two feet apart. Thin successively, as may be deemed requisite, and let the space between each be from six to eight inches. Should vacancies occur, transplant and fill up during damp weather. The seed should be sown early, say from middle of May to same period in June, as in case of failure there would be time to "try again." Many farmers sow as late as the first of August—between rows of corn—but the roots do not mature, and as a consequence are small. They will answer, however, for early feeding, and should any be too diminutive to store, turn in the sheep, so that nothing may be lost. Preparations for soaking the seed are abundant, where there is a desire to force germination, among which urine, soot water and liquid guano are recommended.

The English turnip is much esteemed as a table vegetable. The period for sowing is about one month later than for the Swede. When raised as a field crop, from two to three pounds of seed is requisite to the acre. The ground should be freshly broken and harrowed immediately before sowing. Put in the seed when the ground and atmosphere are damp, as moisture promotes germination, and places the young plants early beyond the reach ef insect depredators. A top-dressing of ashes and plaster will enhance the prospects for a good crop. When they make appearance the hoe or cultivator should be used freely, and the ground kept loose and free from weeds.

Where this root is stored for the purpose of feeding stock, the process is similar to that used for potatoes, with the exception, that they do not require to be kept from frost so exclusively as the former. Too much warmth injures them. Should they be stored in heaps in the field, it is best to leave an opening, covered lightly with straw through which the gases generated may pass off. When intended for the table, one of the best modes, is to pack in barrels with alternate layers of leaves or straw—giving the leaves the preference provided you can obtain them.

The turnip is subject to visits from numerous species of insects, and remedies almost equally countless are offered and advised. Recipes compounded of nitrates and sulphates, urine, soot water, curriers' and fish oil, diluted sulphuric acid, etc., to the end of the catalogue, are stamped with the seal of perfection—by those introducing them—and yet all fail. The *very best remedy* is to get the earth in the *right* condition for the growing plant, sow liberally and give to the crop, from seed-time to harvest, the attention it so richly deserves.

The Crops.—From personal observation, and from enquiry, we are glad to be able to say that the crops in this county are looking exceedingly well, especially wheat. The hay crop is very promising, the growth of which will be materially advanced by the late rains.—*Kent Advertiser.*

The London *Prototype*, in alluding to the crops, says:—"We learn from correspondence from Elgin, Huron and Middlesex, that the grain crops in those counties look exceedingly well. The hay crop in the same district, is also good, and has not suffered so much from the rain, as it has been subject to in a more easterly direction."

Convenient Writing Ink.—Dissolve half a pound of the extract of logwood in five gallons of hot water, add half an ounce of the bi-chromate of potash. Stir for a few hours, and bottle for use. The cost for five gallons of ink is about twenty-five cents.

Surface of the Moon.—The Earl of Rosse, who has recently completed the largest telescope ever made, alluded, at a late meeting in London to its effects. He said that, with respect to the moon, every object on its surface of 100 feet in height was now to be seen; and he had no doubt that, under very favourable circumstances, it would be so with objects 60 feet in height. On its surface were craters of extinct volcanoes, rocks and masses of stone almost innumerable. He had no doubt that if such a building as he was then in were upon the surface of the moon, it would be rendered distinctly visible by these instruments. But there were no signs of habitations such as ours—no vestiges of architecture remain to show that the moon is, or ever was inhabited by a race of mortals similar to ourselves. It presented no appearance which could lead to the supposition that it contained anything like the green fields and lovely verdure of this beautiful world of ours. There was no water visible—not a sea or a river, or even the measure of a reservoir fo supplying town or factory—all seemed desolate.

Benefits to man from the Vegetable World.—Plants satisfy the common necessities of man and beast. They nourish man's body in health, they restore him in sickness; they give him the clothing that covers him, the varied hues that delight his eye, and odours which refresh his senses: the timber of which his houses, his factories, and his ships, are partly or wholly constructed—all these are a few of the many benefits which the vegetable world confers upon man. Wherever we look, we see in it our great resource: even our railroads and our mines could not exist, were we not masters of forests. We would succumb to the cold of winter, food that becomes nutritious only by the aid of fire would be useless, the power of steam would not carry us from land to land and over the broad ocean, if we had no trees. The very destruction of plants is made necessary for their existence, for the wisdom and forethought of the Creator are in this also manifest, that whilst plants invest and ornament the earth, animals browse and trim them to check their luxuriance, so as to maintain the whole system of creation in order and beauty. And yet this is but the humblest purpose that plants serve on earth—the humblest because it only satisfies material requirements, however we ourselves may have refined and varnished them over.—*Stray Leaves.*

A Luxury for Animals.—It is related of Rev. Sidney Smith, that when on his farm, each cow and calf, and horse and pig, were in turn visited, and fed, and patted, and all seemed to welcome him; he cared for their comforts as he cared for the comforts of every living being around him. He used to say, "I am for all cheap luxuries, even for animals; now all animals have a passion for scratching their back-bones; they break down your gates and pailings to effect this. Look! there is my universal scratcher, a sharp-edged pole, resting on a high and low post, adapted to every height from a horse to a lamb. Even the Edinburgh Reviewer can take his turn. You have no idea how popular it is. I have not had a gate broken since I put it up. I have it in all my fields."

Corn Starch.—Another large manufactory of Starch from Indian corn, is about to be established in the Scotia Valley. A company at Columbus, Ohio, it is reported, are about to put up buildings and machinery sufficient to work up six hundred bushels of corn a day. Such use of corn will do less mischief in the world than some other modes of using it, largely practised in Ohio.

Rice Cakes.—Boil rice until it is soft, and while warm make it into cakes or flat balls. Dip these balls into a beaten egg, and then roll them into Indian meal till thoroughly coated. This done, fry them in lard, which is better than butter for this purpose. Serve them with sauce, or with butter or cream and sugar.

Ginger Beer.—Two gallons of ginger beer may be made as follows: Put two gallons of cold water into a pot upon the fire; add to it two ounces of good ginger bruised, and two pounds of white or brown sugar. Let all this come to the boil, and continue boiling for half an hour. Then skim the liquor, and pour it into a jar or tub, along with one sliced lemon, and half an an ounce of cream of tartar, When nearly cold, put in a teacupful of yeast to cause the liquor to work. The beer is now made; and after it has worked for two days, strain it and bottle it for use. Tie the corks down firmly.

A Good Way of Cooking Onions.—It is a good plan to boil onions in milk and water; it diminishes the strong tast of that vegetable. It is an excellent way of serving up onions, to chop them after they are boiled, and put them in a stew pan, with a little milk, butter, salt and pepper, and let them stew about fifteen minntes. This gives them a fine flavor, and they can be served up very hot.

THE PREMIUMS,—In accordance with our previous announcement, we publish below the names of the agents entitled to receive the premiums offerd for obtaining the largest number of subscribers to the *Agrtculturist.* The successful competitors are as follows:—

1st. A. Law, Richmond Hill..... $25
2nd. A. Roy, Saugeen..... 20
3rd. F. Boate, York Township..... 15
4th. J. Atkin, Bradford..... 10
5th. T. Orchard, Innisfil, Copy of the *Farmer's Guide.*

By a special agreement, one or two of our agents were to receive a copy of the *Guide,* &c., for a certain number of subscribers; these, of course, cannot expect prizes also.

DRAINING TOOLS.—Mr. Fleming has just received from England several complete sets of English Draining Tools, to which we would direct the atttention of those who contemplate draining. They are very substantial looking implements, far superior to any got up on this side of the Atlantic. Mr. F. deserves credit for introducing these important tools, for it is doubtful whether he will be reimbursed his outlay and trouble. We trust soon to see tiles furnished at a reasonable price, and then there will be no excuse for neglecting an improvement which lies at the foundation of good farming.

COL. S. G. MORRIS' GREAT SALE.—A very full account of Col. Morris' sale of thoroughbred cattle, sheep, and swine, appears in the New York *Tribune,* of 25th and 26th ult. The priecs upon the whole must have been satisfactory, though some of his Durhams of unblemished pedigree, and from the most celebrated herds in England, sold at a very low price. Romeo, six years old, bred by the Marquis of Exeter, and imported in 1852, sold for $600 only; but he was the first put up, and competition had not been aroused. He went to Ohio. Several Bull calves sold at prices between $300 and $675. We notice that Mr. Robert Gordon of Paris, C. W., was the purchaser of the "King of Algiers," a red and white bull calf, dropped last April, at $400. He is of the best blood to be had in this country. His sire is Duke of Gloucester, (11,382,) dam, Beauty of Brawith, by Emperor, (6,973). We trust Mr. Gordon may be successful with his royal charge. The Devons brought medium prices, ranging from $150 to $360 for bulls, mostly young; and from $125 to $340 for Devon cows. The South Down Sheep brought the longest prices, ranging from $140 to $400 for sheep and rams, and from $25 to $140 for yearling bucks and ewe lambs. Such prices must be considered high, when sheep from the same English flocks can be had in this country at much lower prices. We shall endeavour to give some particulars of this sale, the largest ever held in America, in our next number.

TORONTO MARKETS.

TORONTO, July 1.

For the past month the supply of produce has been abundant in the Toronto Market. With the exception of Wheat, prices have declined for every article. The receipts of Wheat for the month cannot fall far short of 100,000 bushels. Many farmers who had held on to their last year's crop, refusing 10s. and above, have at length been compelled to sell at a considerable reduction; but still a fair remunerating price. We are glad that many of them have not the temerity to hold it over for a longer period, as the probabilities are that a further decline will take place. By selling their Wheat now they have received a good price, and will be ennabled to pay their debts, and give ease to the money market. The price for the month has ranged from 6s. 8d, to 7s. 4d., the average price of the month being about 7s. per bushel. It is selling to day at 7s. to 7s. 3d. The demand has been active for prime samples. Purchases have been made for the Liverpool market to a considerable extent, and large quantities have been brought to supply a rapidly increasing consumptive demand in the New England States. Flour, by wholesale, is difficult of quotation, there being but few transactions. It is held at $5 50, for superfine, and $6 for extra, per barrel. Potatoes are selling at 2s. 6d. to 3s. per bushel. Oats, 2s *a* 2s 6d. Hay $10 *a* $17, per ton. Butter, 9d. *a* 11d. Eggs, 11d. *a* 1s., per dozen.

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THE WHEAT FLY—MIDGE.

We regret to find that this destructive insect is greatly extending its ravages in Upper Canada. In the Lake districts, or that part of the country bordering the Lakes and Niagara River, its ravages appear to have been most severe. It is much to be regretted that none of our Agricultural Organizations, from the Bureau of Agriculture down to the Township Societies—appear to think the subject of insect depredation worthy of their notice. At least we are not aware that any systematic plan for observing the numbers, orders or families, habits, times and modes of propagation, territorial extent, destructive powers, parasites, &c., &c., of those insects that prey upon the farmer's crops, or for discovering the remedies that have been or may be employed to prevent their ravages, has yet been suggested or adopted by our Agricultural Boards or Societies. As a journalist we are left entirely to our own limited observation, to imperfect newspaper accounts, and the occasional remark of a correspondent who has found the "weevil," or "grub," or "worm," or "little yellow maggot" in his wheat, and wants to know where it came from, or how it can be got rid of. The subject is still further involved in doubt by the contradictory statements of wheat speculators—one party declaring that the "fly" has done immense injury; and the other, that it's all "a bugbear to keep up prices."

What could more properly engage the attention of our Bureau and Boards of Agriculture than to collect and disseminate authentic information on a subject like this? The N. Y. State Agricultural Society, aided by a grant from the Legislature, have employed a distinguished entomologist, (A. Fitch, M.D.,) to examine and report upon the noxious, beneficial and other insects of the State. The results of that examination will no doubt benefit us as well as our neighbors, but there are facts peculiar to Canada that ought to be ascertained and made known. We trust a hint will be sufficient, and that next season systematic and extended observations will be made under the proper authority.

We have in previous volumes of the *Agriculturist* explained the habits and appearance of the Wheat *Midge*, and also of the *Weevil*. There is still, however, much confusion among writers and correspondents in regard to names, and this is

another reason for such an examination of the subject as we have hinted at. The insect generally spoken of at present as preying upon the wheat in the ear, is the *Midge*, or Wheat Gnat (*Cecidomyia Tritici*). It is found in the kernels of wheat in its chrysalis or pupa state. the egg having been deposited by the parent fly upon the ears while the grain was yet soft or milky. There is a very wide distinction between this insect and the Weevil, (*Curculio granaria*). The former is of the *dipterous*, the latter of the *coleopterous* order. The true weevil preys upon the grain after it is harvested and when stored in mills, &c. The larvæ of the Midge is most destructive while the grain is yet soft in the ear. Indeed it is said that it cannot eat through the skin of the ripened grain, and therefore is not to be dreaded in the granary.

Remedies.—To the wheat-grower the most interesting part of the subject is how to prevent the depredations of this insect. We believe no perfect remedy has yet been discovered, but so far as we can gather from the experiments and observation of others, as well as our own, we recommend *early sowing* and *early varieties*. We made a tolerably close inspection of our own fields this season, in which both the Hessian Fly and Midge were found, and the result confirmed the wisdom of the above advice. In a field of blue stem, sowed 12th Sept. on a warm clay loam, summer fallowed and manured, we found the Midge in about every fifth ear, and from one to three kernels affected. In a field of Red-chaff, sown a fortnight later and after a crop of pease, on good soil, not manured, four out of every five heads were affected, and from two to six grains in each. A strip of this field was blue-stem, sown at the same time as the red-chaff, and was less affected than the latter, though there was no perceptible difference in the time of ripening.

Fall ploughing wheat stubble has been recommended, and if it were generally practiced, would no doubt, *with* early sowing, prove nearly, if not entirely successful. An experiment, which ought to be repeated in several localities this fall, was made last year by an intelligent gentleman in one of the Western States. We cut out his statement for insertion in this number, but it has been unfortunately mislaid. The experiment, however, was as follows:—He made two square boxes of wood, of equal size, and placed them in his wheat stubble. Under one the ground was spaded and inverted to the ordinary depth; the other was placed on the stubble undisturbed. Both were covered with milinet (a kind of gauze,) which allowed heat and moisture to penetrate but prevented the fly from escaping. He kept a close watch during June and July, and found that the Fly or Midge appeared in the unspaded box from two to three weeks earlier than in the other. This proved that turning the larvæ under ground in the fall retarded the appearance of the fly, and, combined with early sowing, shows the wheat-grower a method by which he can "get ahead" of his dreaded enemy. We may revert to this subject in our next number. Its importance no one will deny. To the farmers of Canada it is almost a question of life or death. A Committee of the N. Y. State Legislature reported that they had "full proof that a single insect (the Midge) last summer (1854) destroyed property to an amount exceeding *fifteen millions of dollars*" "in the State of New York alone."

We have no data from which to estimate our loss in Canada, but even at a guess we may set it down this year at two or three millions.

SHORT-HORN STOCK.

Mr. Thorne, of Dutchess County, N.Y., is a worthy competitor of Col. Morris, in the purchase and importation of first-class Durham cattle from the best herds of Great Britain. He has twice paid 1000 guineas for a single animal.

We believe he has imported several of the best Short-horn cows to be found in England, totally regardless of cost. We hope, before long, to pay a visit to Thornedale, in which case we shall be able to speak more fully of Mr. Thorne's stock. In the mean time, we subjoin the remarks of B. P. Johnson, Esq., the intelligent and trustworthy Secretary of the New York State Agricultural Society:—

THORNEDALE.—We visited Mr. Samuel Thorne, with Hon. Wm. Kelly, last month, and found his farm and stock in fine condition. Since our last visit Mr. Thorne has added another farm of 250 acres, admirably adapted to his purposes, and particularly well calculated for his sheep. He is engaged in completing his farm buildings, the last erection being in the hands of the carpenters, and when completed, there will be no more convenient and well arranged buildings and yards in the country.—The stock were in fine condition, healthy, and all the cows breeding finely. Since we were last at Thornedale, Grand Duke has been disabled, and 2d Grand Duke and Neptune have been imported to supply his place; the former at the price of 1000 guineas, the sum paid for Grand Duke. Although the loss of Grand Duke is a very serious one, still we are of opinion that, so far as Mr. Thorne's herd is concerned, and his interest as a breeder, it is far more than made up by the very superior bulls he has secured. We think them decidedly superior to Grand Duke; and our only wonder is, that 2d Grand Duke should have been permitted to leave England, as his equal, of his age, we do not believe was left behind. Neptune, from Mr. Booth's stock, is a very perfect animal, and to our taste is a bull of extraordinary qualities, and a Short-horn breeder would rejoice to breed from such an animal. He has all the fine qualities for which Mr. Booth's breed is distinguished; and after examining him again and again, we were constrained to admit that we found no fault in him. We shall expect that the produce from these bulls will do credit to the Thornedale herd.—Of Mr. Thorne's young stock, most of it was sired by Young Baloo, and it sustains most fully the opinion we formed of him, when we first saw him at Thornedale. For style and finish, some, and, in fact, almost every calf dropped from him would do credit to any herd; and the loss of this very choice animal is a very serious one, he having met with an accident, which rendered it necessary to kill him.—The cows imported by Mr. Thorne, all now breeding, were gems in the English herds from which they were selected, and the produce from them show that they are likely to be perpetuated here in all their excellence. We were pleased to find Mr. Thorne's cattle in good breeding condition, ensuring healthy and vigorous offspring.—Mr. Thorne purchased at Sir Charles Knightly's sale, in April, four cows and heifers, whose arrival is daily expected, which will make the female department of his herd the richest, probably, of any herd in this country, if not in the world.—We are glad to see the interest Mr. Thorne takes in his herd. He has entered upon it as a business, and is well prepared to carry it forward with that intelligence, which will be rewarded with success to himself and great advantage to the country.—We advise those who are desirous of examining first-rate stock, and seeing a farm in capital order, to visit Thornedale, where they will be kindly welcomed.

RASPBERRY VINEGAR.—*B. G. F. Gerry, N. Y.* The following is a good receipt for making raspberry syrup or vinegar. The vessels used in making or preparing it, should be China or glass. Mixed with water, it is one of the most pleasant as well as wholesome summer drinks:

Put one quart of best vinegar, (white is preferable) to two quarts of raspberries not over ripe. Let them steep in the vinegar twenty-four hours; then strain them through a sieve without pressing the fruit, and pour the liquor so strained on two quarts more of raspberries. In twenty-four hours more strain it off again, and to a pint of juice put one pound and a half of very fine loaf sugar. Put the above into a jar and the jar into a pan of warm water, and let it stand till all the sugar is melted, taking off the scum as it rises; then take the jar from the warm water, and when cold bottle off for use.

THE APPROACHING PROVINCIAL EXHIBITION.

We presented to each of our subscribers, with our last issue, an *Agriculturist Extra*, containing the authorised Prize List of the Provincial Association, and the Rules and Regulations of the Annual Exhibition, which will be held this year at Kingston, September 23d to 26th.

There are a few points in the Regulations, to which it may be useful to draw the special attention of the readers of this Journal. In the first place, all Entries must be made on printed forms, which are supplied to the Secretaries of Agricultural Societies; which forms are to be filled up and signed by intended Exhibitors, and forwarded to the Secretary of the Board of Agriculture, Toronto, not later than Saturday, September 6th; after which a charge of one dollar on each article entered will be imposed. The only exception to this rule relates to the Horticultural, Ladies', and Foreign Departments, in which entries can be made up to Tuesday, September 23d, *when the books will finally close*. This rule it is intended shall this year be absolute; a condition essential to the harmonious and efficient working of the Exhibition. Such persons as cannot conveniently procure blank forms of entry of the Secretaries of Societies, may readily do so, by applying personally or by letter either to the Secretary of the Board of Agriculture in Toronto, or the Local Secretaries, Dr. Litchfield or W. A. Geddes, Esq., Kingston. Exhibitors must remit one dollar with their entries, when a Member's Ticket will be forwarded to them, which will admit them at all times free to the Exhibition. The charge of admission to non-Members will this year be a quarter of a dollar, each time.

We learn that the Local Committee, at Kingston, are proceeding with the fencing and buildings in the most satisfactory manner, and that the accommodation provided for the Show generally, is on a larger scale than heretofore. It is much to be desired, therefore, that the public will adequately respond, and that each County and Township throughout the Province will see that their industrial condition and capabilities are properly represented in this National Exposition. The Show of the Lower Canada Society being held the previous week at Three Rivers, and that of the State of New York the week following at Watertown, in the vicinity of Kingston, will naturally attract to the latter a large number of visitors and productions from beyond the limits of the upper section of the Province; and a much larger amount of business will in all likelihood be transacted than on any previous occasion.

It is only bare justice to remark that Kingston and the surrounding district are setting an example, which is alike honorable to their sound judgment and public spirit, and which it is devoutly to be wished may be hereafter followed by other places, when the Provincial Shows take plaae. They are erecting, entirely at their own expense, a strong permanent fence around the beautiful Show ground, consisting of upwards of 20 acres; and also a handsome and capacious building, consisting mainly of glass—a Crystal Palace indeed, somewhat in miniature! These grounds will be rendered ornamental by planting, &c., and while affording a pleasant resort to the public during a large portion of the year, will be excellently well adapted for the holding of agricultural and horticultural shows, and other public objects. We

have much pleasure in noticing these facts, particularly as it has, in some quarters, been insinuated that a portion of the funds of the Association is given to these extra objects, with a view of rendering the Provincial Shows permanent at Kingston—an allegation which, it is almost unnecessary to say, is altogether imaginary. We will only remark further, that the Local Committee are striving to do their utmost in providing ample accommodations both for visitors and articles for exhibition. The wharfingers have liberally consented to forego all charges for landing and re-shipping Stock and all articles for the Show; while the President of the Association has generously promised to supply the necessary amount of hay without any charge, either to the exibitors or the Association. We trust that such efforts will be nobly sustained by the country.

IMPORTANCE OF COLLECTING RAIN WATER.

Much might be done towards lessening the evils and discomforts occasioned by droughts by collecting in tanks, built underground, the rain water which falls on the roofs of houses and farm buildings. There are few families but what suffer inconveniences, more or less, during the driest portions of the season in Canada, from an insufficient supply of soft water; which is an essential in many of our domestic operations.

Rain water is undoubtedly the best not only for many domestic, but also for most garden and agricultural purposes; and an adequate supply of so essential an agent ought to be a primary consideration with every owner of a house and the smallest plot of ground. It has been carefully ascertained by actual experiments, that every hundred cubic inches of rain water contains more than four cubic inches of air, of which more than half is carbonic acid gas, and the remainder nitrogen and oxygen, in the proportion of 62 of the former to 38 of the latter. Rain water also contains a peculiar substance analagous to the extractive matter and glute of plants, though differing from them chemically. Compared with all other water naturally produced, it is so pure and so abounds with the gases beneficial to plants, that none other can equal it for their service. Water obtained from ponds and springs invariably contains matters offensive or deleterious to vegetation. The worst water is that called "hard water," containing, as it often does, an excess of salts and magnesia. If pond water be stagnant and loaded with vegetable extract, it is as bad as hard water, for it contains carburetted hydrogen and other matters exceedingly hurtful to vegetables. These last may be somewhat improved by the addition of an ounce of carbonate of ammonia to each gallon. Water, heat and air are the three active principles in inducing the germination of the seed and the after developement of the plant. Remove any one of them and their existence ceases. The purer each of these elements are the better. Water containing deleterious ingredients, artificial heat produced by fire beyond certain limits and unaccompanied with a due proportion of humidity, and vitiated air, are all alike inimical to vegetable existence. Rain water is usually much *warmer* than that derived from springs and wells, and on that account is much better adapted to the purposes of the farmer and gardener in reference to the promotion of the growth of plants; many of which are often injured rather than benefited by the injudicious application of cold spring water.

THE MIXING OF SALT WITH LIQUID MANURE.

Some years ago Mr. Parkes, the author of *The Chemical Catechism*, got up quite an excitement among the farmers of England on the application of common salt as a manure. As the extraordinary expectations raised, even not borne out by trial, the article of salt again became neglected by agriculturists. Still it would appear, that even in the insular position of Britain, whose atmosphere is always strongly impregnated by the saline influence of the surrounding seas, salt has of late years come into more general use on the farm, particularly for mixing with compost heaps.

It has been stated, on good authority, that M. Barral has proved satisfactorily that common salt is a fixer of ammonia. If this be correct, the use of salt in compost manures, in which fermentation and decomposition are always more or less active, admits of an obvious solution. In Switzerland it has of late become a common practice with farmers to mix salt with their liquid manure in the tank, in the belief that it tends to prevent the escape of ammoniacal gas. This practice is said to have arisen from an accidental circumstance, which it will not be uninteresting briefly to narrate. The import duty on salt in Switzerland is very high and oppressive, and therefore not unfrequently leads to a breach of the law. A peasant having tried to defraud the authorities by carrying off a bag of salt, was discovered and pursued. In his anxiety to escape the punishment which would be inflicted if the bag was discovered, he threw it into his manure-tank. After all risk of exposure had disappeared, he thought that his liquid manure must be greatly injured by the salt, and accordingly diluted the moisture largely with water. To his great surprise he found that the grass was better and more readily eaten by stock on that part of his meadow where the liquid manure was applied containing the salt, than those portions which were irrigated by the ordinary liquid manure. The experiment was several times repeated, with a similar result; till at length the Government allowed refuse salt to be used for manure with little or no duty. Such salt usually contains from 75 to 80 per cent. of saline matter. About 1 1-10 lb. of salt is used for every 22 gallons of liquid manure; in gravelly, dry soils a larger proportion of salt is employed, and in soils naturally damp a smaller proportion.

In soils liable to suffer from drought, on dry hill-sides, salt is employed, after being first mixed with earth. Its effects are most apparent on peas and leguminous plants of every kind, or roots; potatoes, carrots, &c. It has little effect on clay soils, excepting when drained. In some districts it is used for improving the quality of the dung. The salt is first mixed with earth, and this mixture is spread on every layer of dung.

These and other details, communicated by M. Fellenberg, are worthy of a careful consideration from farmers of all countries. In Upper Canada, which is shut out, in great measure, from oceanic influence, it is well understood how necessary salt is to domesticated animals, and how greedily they devour it. Plants must obtain the salt they require, either from the soil or the air; if both be destitute, it must evidently be supplied artificially. Salting hay, especially when injured in the making, is found to be a beneficial practice; and the application of this material to our barn-yard manure, compost heaps and yard drainage is deserving a fair and general trial

by Canadian farmers. We would caution, however, our readers against applying large doses of salt, or using it in an undiluted state. When so employed it is apt to injure vegetation for a time.

THE CAROB-BEAN: A NEW FOOD FOR CATTLE.

The algaroba bean, or carob-tree (*Ceratonia siliqua;* in Greek, Κερατια), the fruit of which is sometimes termed "St. John's bread," at other times "locusts," "sweet pod," &c., is a very remarkable plant, growing abundantly in the south of Europe, and, indeed, in all the islands of the Mediterranean, and the countries skirting the shores of that sea. In Malta, it is said to be the only tree indigenous to the soil, its dark green foliage relieving the eye from the irksome monotony of the white stone inclosures which everywhere abound, and appears originally to have given the island its name. In all the countries where it grows wild, its fruit is eaten by the inhabitants. In a dried state, it is also largely consumed by horses. In this state, full-sized pods measure from four to five inches in length, about one inch in breadth, and three-eighths of an inch in thickness. When ripe, the pods are round, plump, and contain a sweet, nutritious pulp.

In medicine, its pulp, like that of the tamarind, is slightly purgative. In the form of a decoction, it is also exhibited as a pectoral in asthmatic complaints and coughs.

We have seen no chemical analysis of the carob bean; but it is said to contain about "fifty per cent. of sugar and gum; besides a large proportion of oily matter." This would point to its being used to most advantage for mixing with other food, so as "to season it," giving it a flavour, and inducing stock to eat more largely. In the generality of cases it would appear better adapted as food for milch cows than fattening stock, especially those disposed to run to fat, where sour food does not agree with their stomachs. A little may also be profitably mixed with the dry food of horses, in a pounded state; but from its purgative nature it is probably not so suitable for sheep, although they are extremely fond of it. In all these cases, however, experiment must be left to settle its value, whether as food for horses, cattle, sheep, or pigs.

At present we ought to thank the Great Exhibition at Paris for bringing it into fresh notice; it being there largely exhibited by Spain and several other southern states of Europe, from which a plentiful supply could no doubt be had. Where grown, the dried pods cost something under £3 per ton, and in London sell at about £8. 10s.

With regard to the many names which it has acquired, it is said to have obtained that of "St. John's bread," from its being supposed to be the fruit of the tree which yielded the wild honey eaten by St. John in the wilderness. Metaphorically, the two words μέλι ἄγριον—translated, *wild honey*—may have meant, in the figurative language of the East, the carob-bean, from its mellifluous smell and sweetness resembling that of honey, and have been eaten along with the locusts; or carob-beans, locusts, and honey may have more probably been the food referred to.

The term "locust," used by Mr. Melladew and others, in London, is obviously a misnomer, and therefore ought not to be used: for locusts were permitted by Divine law (Lev. xi. 21, 22) to be eaten, and were so by the Jews; while in no case does, or can, the word ἀκρίδας—translated *locusts*—mean the fruit of a tree. This gentleman, however, in his letter to the Council, is quite right with regard to the "husks which the swine did eat," referred to in the parable of the Prodigal Son; for the words ὑπο τῶν κερατίων—translated *with the husks*—ought obviously to have been rendered *with carobas* or *carob beans*, meaning with the fruit of the carob-tree, which was used as food for swine, according to Columella, who may be said to have been contemporaneous with St. John the Baptist—κερατιων being the genitive of the Greek name (κερατια) of the plant *Ceratonia siliqua*, and not with the husks of the fruit, as translated. In short, husks is not the proper English name for the unshelled bean as given to swine, and as now imported.

"There is something in a name," it is said, and perhaps the best designation for this new edible will be *Carob-bean*. The practical question at issue is to give it a fair trial, as food for our different kinds of stock, mixing it in all the various ways which circumstances may dictate. In many cases, it may be given medicinally alone. It would also be desirable to have a more perfect analysis of it, as from its taste and smell it probably contains an aroma and tonic peculiar to itself, less or more affected in quality by season, climate, and management. Pliny tells us it grew abundantly in Syria in his time, and doubtless also it will be found equally plentiful throughout the whole of Asia Minor. Whether is the European or Asiatic the richest in quality? Is its sugar grape-sugar or cane-sugar? These and many other questions demand a chemical solution.

BONES AND PROGRESS.

We had just laid down Jethro Tull's refreshing volume, published in 1732; had been pondering over his condemnation of the use of dung for turnip crops; when a Lancashire subscriber wrote us—"If you would give in your columns the receipt for making super-phosphate from bones, it would be most useful to your readers." Strange revolutions these in one century! Jethro Tull in 1730 telling us, "I have made many trials of fine dung, but I have for these several years last past left it off;" while in 1856, chiefly for root crops, the wide world is explored for manures. Startling facts these, for the farmers of the old school; cheering prospects for the modern experimental searchers after truth; and a ground for very useful reflections for all who are over-fond of theorising on agricultural practices. When Tull condemned the use of dung, and when his neighbours raised shouts of derision at his noble efforts, they were all about as wide of the truth as the fen-land farmer, who, at the close of one of Dr. Buckland's eloquent after-dinner addresses, at the Cambridgeshire meeting, exclaimed, with a voice that could have been heard across Bardolph Fen, "Aye, Doctor, it may be all true; but, by Gom, there's nothing like mook."

It has taken a long century to establish the truth of some of Tull's assertions—his drill husbandry—his deep ploughing—his complete cleansings and pulverisations; another, but we feel a much shorter interval, will make other general advances—will effect the still more general use of artificial manures, will bring forth yet more powerful land-cleaning and digging machines. The farmers of 1876 will, perchance, keep fewer farm-horses, raise more food for man; they may, it is more probable, talk with some compassion of the citizens of a past generation, who imported, at a great expense, from the other side of the globe, nitrogenous manures, whilst they poured huge quantities of a similar kind into their own rivers. The chairman of the country meeting of the Royal Agricultural Society in 1956 will, perhaps, talk of these things as of some old tale of the Druids—strange notions, not exactly comprehensible; he may enliven his speech by referring to the correspondent of a contemporary, who gravely denounced the then lately proposed use of oil of vitriol and bones as a wild scheme, only quite certain to "burn up the land."

But we have to answer the question of our subscriber as to the manufacture of super-phosphate of lime from bones. The operation, supposing always that it is the farmer who wishes to make his own, is not very difficult (although we much doubt its economy, except the turnip growers despair of finding a trustworthy manufacturer). It consists in finely pulverising the bones, and then thoroughly mixing them in a leaden or earthen vessel with about 44 per cent. of their weight of *previously* diluted (with water) sulphuric acid. The analysis of boiled bones has been given by Professor Way, in the twelfth volume of the "Journal of the Royal Agricultural Society." He found in 100 parts of these—

Moisture	10 parts.	Phosphate of Lime	60 parts.
Animal Matter	16 "	Carbonate of Lime	11 "
Sand	3 "		
			100

The quantity of oil of vitriol required to convert the phosphate of 100 lbs. into bi-phosphate here will be

For the carbonate, 11 lbs; for the phosphate, 33 lbs.=44 lbs.

There are other impure varieties of phosphate of lime used in the making of bi-phosphate, such as bone charcoal, bone ash, guano, coprolites, &c., few of which are commonly available by the farmer; nor can he fairly hope to compete with even the honest manufacturer, in cheapness, since he neither has the machinery nor the chemical knowledge requisite to ensure purity in his materials; neither does he possess the advantage which the manufacturer possesses, in being the preparer of his own sulphuric acid. If, however, our subscriber wishes to become a manufacturer, he will find in the volume to which we have referred, most of the ordinary processes described.—*Mark Lane Express.*

To Braise Chickens.—Bone the chickens, stuff them with forcemeat, place in the stewpan the bones and trimmings, lay the chickens upon them with a braise of fine herbs, onions, mace whole, some thin slices of bacon, about three parts of a pint of stock, or if that is not handy, water, and two glasses of sherry; the bacon should be added last. Cover close, and stew for two hours. Then take out the chickens, strain the braise, remove the fat, and boil the braise rapidly in a glaze; paint it over the chickens with a brush, while the braise is being boiled; brown the chickens before the fire, it adds to their appearance. When glazed, fowls may be braised in the same manner.

THE LATE SHOW IN PARIS.

We gather from the correspondent of the *Mark Lane Express* the following summary in regard to the late great agricultural show in Paris:—

"There are no less than 1,300 head of cattle, divided as follows:—Shorthorns 140, bred in England; subdivided into two classes—yearling bulls and yearling heifers; old bulls and cows. In the Young Class there are 25 bulls and 27 heifers; in the Old Class, 36 bulls and 43 cows. To these the programme had at first announced only four prizes to each category, or sixteen in all; but a subsequent decree has further extended the prize list, and eight prizes have been given to each of the bull classes, and seven to the heifers and cows respectively. Besides these, there are prizes given to the Shorthorns bred in France, which form a distinct class, and of which there are 55 exhibited, making a total of 195 Shorthorns.

The Herefords are most niggardly represented. There are bulls and two cows altogether; that is four animals, three of which belong to Mr. Fisher Hobbs, competing for six prizes! The Devons are not much better here, whatever they may be at the Bath and West of England shows; of these there are only four bulls and seven cows, to compete for eight prizes.

The Scotch breeds are, in our opinions, with the exception of the Shorthorns, better represented than any other, both in point of numbers and merits, the Ayrshires and Blackpolled cattle especially; of the former there are 18 males and 60 females, bred in Scotland. To these 19 prizes, 8 for the bulls and 11 for the cows, have been given. Besides these 78 Ayrshire animals, there are 17 more, born in France, which form a distinct class, making a total of 95 of the Ayrshire breed. Of the Black Angus tribe there are about 40 animals exhibited,to which 13 prizes were offered. Of the West Highland, 30 beast are competing for 11 prizes. The Irish Kerry breed is represented by 23 animals, among which 8 prizes will be distributed. Altogether the number of animals exhibited by the United Kingdom, including the Channel Islands, is nearly 400.

The Dutch breed numbers about 40. The various Swiss tribes of horned cattle amount to no less than 228 animals, pretty equally divided between the Friberg, Bernese, Schwitz, Central and Eastern Switzerland, and Unterwald. Of the Tyrolese and Austrian breeds there are 62 animals. Of the long-horned Hungarian, Moravian, Gallician, Bavarian, and Bohemian races there are 46 animals; and 4 Buffaloes from Hungary. Saxony has sent 12 animals; Denmark and Holstein 32.

The French races, as may well be imagined, are very remarkable and numerously represented. The heavy and gaunt Norman breed muster 61 animals; the Flemish race, 37; the beautiful white Charolais breed, so similar to our Short-horns, amount to 36 animals; the Gascon race—some of which, it is said, found its way to England two hundred years ago—is represented by only two male animals. The other breeds—such as Garonese, Courtois, Breton, Limosine, Sales, Parthenaise, &c,—muster about one hundred more, which, with the French contribution to the Short-horns and other English breeds, make a total of nearly 500 head, many of which are produce of the cross of Short-horn bulls with the native breeds, and thus form one of the most interesting features in the whole exhibition.

The sheep of all races and all countries are very numerous. England has sent about 250 lots, of various breeds; Holland 24 lots; Austria, about 100 pens; Saxony, 28; other foreign states, 18. France has contributed—of her own breeds, or of foreign sorts bred in France—nearly 200 pens: making a total of 1,200 sheep, 500 of which are contributed by France, 400 by Great Britain, and the rest by the European states.

In the Pig class there are 171 animals, 72 of which are contributed by Great Britain, 82 by France, and 17 by other countries.—Out of the 82 belonging to France, there are no less than 65 representing the English breeds; thus showing how widely they are being spread all over the country, and in what estimation they are held.

The Poultry class, &c., numbers 474 pens, containing about 1,400 birds.

In the Implement class there are 2,107 lots, comprising every kind of instrument or appliance connected with agriculture: of these, 371 belong to the United Kingdom, 3 to Australia, 88 to Belgium, 51 to Denmark, 5 to Holstein, 2 to the Roman States, 7 to the United States, 42 to the Grand Duchy of Luxembourg, 33 to Holland, 1 to Prussia, 5 to Saxony, 36 to Switzerland, 4 to Wurtember, and no less than 1,430 to France.

In the agricultuaal produce department there are 4,635 lots, only 120 of which belong to England, 480 to various other nations, and 4,065 to France, chiefly contributed by the Government Schools of Agriculture."

At the close of the exhibition, the Minister of Agriculture addressed the assembled competitors, on the occasion of the distribution of prizes. The following is an extract from his speech:—

"Gentlemen,—I think I may without pride proclaim at the outset of the ceremony, the full success of the Exhibition, and the definite triumph of the cause of Universal Agricultural Competitions. This institution, very modest in its origin, was commenced in 1850; how rapid, therefore, has been its progress, and how much its circle has been increased, even since last year! The vast palace erected for the Exhibition of Industry has not been large enough for this agricultural show. The bovine race alone almost equals in number that of all the animals exhibited in 1855. Independently of the races, the principal qualities I pointed out to you last year, there is now in this Exhibition for the first time the polled breed of Angus, those from the mountains of Scotland, the Irish breed from Kerry, that of Central and Eastern Switzerland, those of Denmark and Holstein, and lastly, thanks to the enlightened zeal for which I thank its government, the most highly esteemed breeds from Austria. Near those noble animals are also ranged more than 9,000 specimens of other races, which fill the farmer's stalls, animate his fields, or give life to the poultry-yard.—Round them have been classified in innumerable quantity the most precious gift of the soil, the most varied productions of cultivation, and the newest and most ingenious machines—those powerful and indispensable auxiliaries to human labor. * * * * * Examine the catalogue of our Exhibition; in addition to its agricultural value it has a great political signification. Have you not remarked with pleasure that names the most separated by civil dissensions have come together at this peaceful tournament? The reason is that agriculture has its rewards for every legitimate ambition, that all parties have an equally powerful interest in it, and that the beauty of the productions of agriculture give the measure, and in certain respects the degree, of civilisation. * * * * Before separating from you, gentlemen, I give you an invitation to meet here again next year; you may rely on the same kind hospitality, and allow us to hope that you will evince the same eagerness to attend here."

THE CROPS.—MANNY'S MACHINE.

To the Editor of the Agriculturist.

Sir,—Having been engaged during the last three months in introducing "Manny's Patent Combined Mower and Reaper," and putting them into operation, I have had occasion to travel in various parts of the country, and to observe the prospects of the crops, and the benefits derived from the use of these machines. I therefore purpose making a few remarks for publication in your valuable Journal, if you think them worthy of a place. With regard to the crops, then, I think that our farmers are more highly blessed with an abundance than they have ever been in any previous year, particularly with wheat, of which there has been a much greater breadth sown, and which, with very few exceptions, promises more than an average yield. These exceptions, I find on enquiry, are mostly confined to light farms, which have suffered for the want of rain, and to farms which have been badly tilled, and to the want of carrying out the principle of rotation of crops. Prices of wheat have been so high of late, that farmers are anxious to reap the immediate benefits, without regard to injuring their farms, and without considering that other kinds of produce are just as remunerative, and perhaps more so, as the weavil is making its appearance in some parts, and consequently a change will be necessary in order to exterminate them. There have also been very large crops of hay and oats, particularly of the former, of which I think I never saw better crops, or a more favorable time for securing them. In this farmers have been very much assisted by the use of Manny's machines, which I had the pleasure of introducing last year, and which I find have given very general

satisfaction; indeed, when they have not given satisfaction, the fault lies entirely with the farmers, who have either not understood how to work them or have not put their land in proper condition. Upon this point, a few suggestions may not be altogether unacceptable. In my tours I have met with several kinds of Reapers and Mowers, but in no case have I found either the one or the other, separately, to do better work or give more general satisfaction, than Manny's Combined Machine, which is competent to do good work either at reaping or mowing, provided the land is first put in a proper state. In order to do this, it is not advisable to throw the land into high ridges when intended for meadows, but it should be made as level as possible by thorough ploughing and harrowing both ways. All large stones, sticks, &c., should be picked off, and the land well rolled, so as to settle all small stones, &c., below the surface. The same course, though it may seem to some burdensome, should be adopted with grain land, and I am confident, from my own observation, and I have had a good deal of practical experience at farming, that it will prove both remunerative and satisfactory. Many persons have already adopted it, and I do not know of a single instance where they have, that they are not well pleased with their machines, and very seldom meet with accidents. It is true that this course is not indispensably necessary, in order that these machines may be employed, but where it can be adopted, it is advisable, and will ensure better success. * * * *

Yours respectfully, D. Massay.

Newcastle, Clarke, July 21st, 1856.

[Mr. Massay mentions several cases in which the "Manny" machines succeeded in lodged clover to the surprise of all spectators, including himself. He also claims for this machine high merit as a Reaper. These particulars, however, are more suited to our advertising columns; and we therefore omit those portions of Mr. M.'s letter. A good practical farmer himself, his remarks on crops, preparation of land, &c., are entitled to a place where we have inserted them.]

LIVE FENCES—THE CRAB APPLE.

To the Editor of the Agriculturist.

Sir,—I have read with pleasure the replies to your several questions respecting live fences or hedges, published in the *Agriculturist* for April.

Allow me to say that the Native Crab Apple-tree, in my opinion, is far superior to any mentioned in your valuable paper for live fences, and for many reasons; being indigenous, it will stand the rigors of the Canadian climate; the tree lives to a great age, the wood is the hardest, the limbs the crookedest, the thorns the sharpest, and the blossoms the sweetest of anything in Canada.

I never saw a field enclosed with a hedge. I have only seen specimens for ornament in gardens; consequently I cannot follow the traditions of my fathers; and trust you will not laugh at me if I undertake hedging on my own account.

Let me ask, why is it necessary to have the hedge so thick-set and bushy at the ground? This appears to me to be the very cause of failure in this country, where the summers are intensely hot, and the winters so extremely cold. Is not the want of light and air, the cause of blight or dying out of the hedge, which so many com-

plain of? Does it not also add to their trouble, by becoming a cage for every unclean thing, and a complete and safe harbor for mice to girdle the plants in winter?

We all know that for gardens and fields round the farm buildings, it is necessary to fence against children, chickens, and pigs; but for division fences on large farms I do not think this to be necessary. Pigs and chickens have no business there, and children are as well off one side the hedge as the other, and better in school than either.

As I have recommended a new tree (as old as Adam) to grow the hedge, allow me to plant it merely for experiment. Suppose we form a moderate ridge, then set the crab-tree of two years' growth in a line on the ridge one foot apart; the next spring head them off one foot from the ground. In after years trim the side branches moderately, and use a little patience and some labor in interlacing the limbs in the line with the trees adjoining. It is quite natural for the limbs of the crab-tree to grow horizontally—their thorns will hold them together.

My reason for leaving the hedge open at the ground, is to allow light and air a free circulation, which will, as I think, keep the hedge healthy. Allowing the winds a free sweep under the hedge, will in most winters prevent the snow from lying on the ridge, and make but a poor harbor for mice, and the ridge is easily kept clean.

I am decidedly of opinion that in five or six years from setting, we may have a fence that will turn cattle and horses.

Time and experience will determine the utility of the crab-tree for hedges, the distances apart to set them, the height to head them, &c.

If I have advanced anything worthy of notice, you are welcome to improve upon it and trim it before submitting it to your readers—for editors are always considered handy with *shears*, otherwise cast it into the fire, crab-trees and all.

Paris, 1st July, 1856. Yours, &c., H. C. P.

QUICKSAND IN WELLS.

To the Editor of the Agriculturist.

Sir,—Can you, or some of your correspondents, tell me how I can remedy an evil which has given me, as well as my neighbors, much trouble? I refer to the filling up of our wells with quicksand. Water is not found until we penetrate a quicksand strata, and neither brick, stone, nor wood will prevent it from sifting into the well, or rising as high as the water. I have thought that there must be some means of keeping it out, but no plan we have yet tried has entirely succeeded.

If you can suggest one, I have no doubt you will confer a great favor on many of your readers.—I am, &c., J. C. B.

York, July 11th, 1856.

Remarks.—We have been troubled with the same grievance as our correspondent, and found a wooden curb sunk several feet deep in the quicksand, and supporting a brick lining above it a tolerable remedy. The sand comes in slowly, and requires to be occasionally removed. But we have seen a plan recommended in the "Michigan Farmer," in answer to a similar inquiry, which we are inclined to think will prove effectual. We give it in the words of the correspondent of that journal:—

"Dig the well as deep into the quicksand as convenient, then commence stoning—have ready one or two loads of coarse sand and gravel from the bed of a stream, or from the beach of a Lake; as soon as you have one tier of stone placed round, chink the holes with small stones, then fill in with your sand and gravel outside of the stones, and pound it down solid with the end of a hand-spike or other stick of wood; then another tier of stone and sand, pound as before; and so continue until you get as high or a little higher than the water will be likely to rise. I have known wells to be built in this way these fourteen years; and during that time they have never been troubled with quicksand."

Another correspondent says:—

"I have dug two wells where there was quicksand; when I stoned them up, I filled in behind the stones with gravel, and I have not had any trouble since; if there is sand in the bottom, I would lay a laying of stone and gravel in the bottom, and I will warrant that no sand will get in."

RINGING A BULL.

To the Editor of the Canadian Agriculturist.

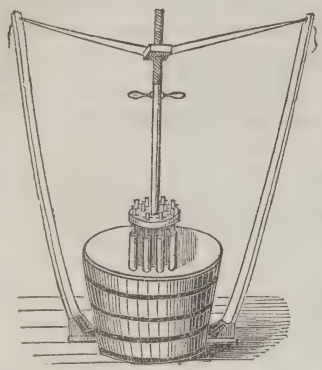
Sir,—Having witnessed the very necessary operation of ringing a bull, and the manner in which most people in this country do it, and the pain the animal suffers, I wish to suggest a mode adopted in the South-west of England. Here the general practice is to bore the cartilage of the nose with a red-hot iron, and then insert the ring, made of half-inch iron rod, and about 4½ inches over all; but, in my opinion it is a cruel and barbarous way of doing the thing. Now, allow me to state my plan, which is as follows:—First, the animal is thrown on his off side, and his feet made secure; then the nose is cut through with a punch three-eighths of an inch in size; on the inside a piece of wood is put against the cartilage, and allowed to rest on the ground; the operator then strikes the punch with a hammer, and the ring is inserted, being first smeared with a little olive oil; the ring is made of one-fourth inch iron, and its diameter is 2½ inches. There are two joints, fastened together with two counter sunk screws or rivets. It cannot be too highly finished. This is the quickest way I ever witnessed; it can be all done in one hour with three men.

Having taken the *Agriculturist* for some time, and reading it regularly, I think if any farmer can communicate anything beneficial to his neighbors, he should write and have it inserted, so that others may profit by his experience. If you think fit to insert this in your next, you are at liberty to do so.

Yours truly, A Subscriber.

Stick to the Farm.—It is a peculiar part of the programme common to high pressure times, when speculation riots and drives reason and prudence into obscurity, that men forsake the plow, anvil, and work bench, and resort to the selling of silks and laces, toys and tobacco, rat-traps, grindstones and ribbons for a living; it is useless for a man of prudence and experience to urge that bankruptcy is generally the fate of all such as forsake the farm and resort to the counter for a living. Inexperienced in the business, their failure is a mere problem in the process of solution; the first re-action in commerce and currency will sweep them overboard and they will go down. A successful farmer, possessing a family, has no more of a right to forsake his well-secured farm boat, for a leaky, shaky, cob-wed, lace-lined boat, than he has to resort to intemperance or gambling. Stick to your farms: your lands will never desert you, nor cease to supply your wants, unless you first desert them. The mercantile business is a humbug to whoever is inexperienced in it; like gambling it must be understood to make it pay, and woe to him who bets on a card that he can't tell as well by seeing the back as the face.

ANDERSON'S WASHING MACHINE.



This machine is attracting attention from those who wish to lighten the toil of the washing day; and what *man* could refuse his sympathy in such a case? Various plans have been proposed to substitute machinery for the feminine knuckles. In some cases the labor of working the machine was greater than to ply the old-fashioned wash-board; in others, the clothes were washed to pieces, which did not harmonize with the popular notion of economy. We have examined a good many machines, and enquired of those who used them as to their operation, but we have never seen one constructed on the *rubbing* principle that gave satisfaction. The knuckle machine has been extensively introduced, and is liked by some, while others reject it. The machine of which the above is a cut, is free from most of the objections to which others are liable. It works easy, washes tolerably clean—with an abundance of soap and water, especially the latter,—and does its work in good time. We have had one in use for some months, and our "women folks" would not part with it for many times its cost.

As the reader will readily see, it is simply a "pounder" suspended between two springs. The "pounder" is, however, an ingenious contrivance, and must be seen to be properly understood. C. J. Houghton agent for Toronto.

Millet.—Having with many others suffered from the severe drouth of 1854, in my hay crop, I was induced last spring to procure half a bushel of millet seed. When preparing my ground for oats, I reserved one acre and a quarter for the millet. After corn planting, say about the first of June, I plowed the said ground again, harrowed it down, sowed my millet seed, harrowed thoroughly again, and quietly waited the result. Well, after a while the young sprouts made their appearance, looking very much like what is generally called pigeon grass. But after securing my wheat and oat harvests, I had a heavy crop to cut on my millet ground. Leaving a small piece which I sowed thinner than the rest to ripen for seed I mowed the field, and cured it as clover should always be cured—in small cocks. When sufficiently dry, I carted five heavy loads to my barn, and my horses, cows and sheep have thanked me many times for my first experiment with millet. They have all eaten it readily and greedily, and I am so highly pleased with it, that I shall sow much more this spring. The time for sowing should be as indicated above, when the weather is warm enough to make corn grow readily—from the 1st to the 5th of June—and the time of harvesting comes after the rush of other harvests is over, thus accommodating the farmer, at both periods when it wants attention. It yields seed bountifully, which makes a flour very palatable for man, and is decidedly nutritious for every animal and not forgetting the fowls—they are very fond of it. I say then to my brother farmers, try a piece of millet, and I am confident if you try it once, you will again.—*Ohio Cultivator.*

Stewed Cucumbers.—Take two or three straight cucumbers, cut off one end, then take out the seeds, lay them in vinegar and water, and pepper and salt; have some good farce, and fill each cucumber with it; dry your cucumbers well out of the vinegar first, then dry them in a clean rubber; then fry them, if for brown; if for white, not; take them out of the butter, and put them to stew in some good stock, with one onion, a fagot of herbs, a slice of lean ham, until tender; thicken the liquor, and pass through a tammy; season with a little drop of vinegar, lemon juice, sugar, salt, and white pepper; glaze the cucumber several times to a light brown.

DESULATORY MEMS ABOUT BEES AND THEIR MANAGEMENT.

1. Never kill a bee on any account whatever.

2. There are rather more than 300 in one ounce, and about 5,000 in one pound avoirdupois.

3. A swarm, to be considered a good one, ought to weigh not less than from four to five pounds; if much less than four pounds, it ought either to be returned whence it came, after taking away its queen, or be joined to another weaker hive or swarm.

4. The first swarm is headed by an old queen, the others by young queens. Eight or nine days after the first swarm comes off, one or more young queens will be heard, if you tap the hive with your hand gently once or twice in the evening and listen, crying, "peep, peep, peep;" that hive is then ready to swarm a second time.

5. Use hives made of wood, and so constructed that you can give your bees room as they require it; the side-box system is the best. As a general rule, swarming ought to be prevented as unprofitable, unless an increase number of hives is wished for, as one strong stock is much better than three weak ones.

6. One side-box has been known to contain upwards of fifty pounds of pure honey, and to be taken without killing a bee; and fifty pounds of honey at 2s. a pound is £5 sterling, which is money!

7. Fumigation is effected by the means of the smoke of the Fungus pulverulentus, or common "Fuzz-ball" or "Frog-cheese," which grows plentifully on old pasture, and should be dried in the oven till it is like tinder—the smoke stupifies, but does not kill the bees. When they are in that state, pick out the queen, drench them with water in which a little honey has been mixed, and place the hive containing nothing but these half-drowned bees upside-down under the hive you wish them to join; the dry bees will go down and lick the others dry, and the whole will then ascend into the upper hive, and the junction will be complete. Let the upper hive rest on the under one.

8. Weigh all your hives or boxes when empty, and mark upon them the weight. For the winter support of your bees each hive with the bees should weigh nearly twenty-eight pounds; the richer and stronger the bees are in winter, the better will they be able to work in spring for you. If in autumn they do not weigh nearly twenty-eight pounds, they must be fed up to the proper weight.

9. When a swarm comes off, and the weather is not suitable for bees to go out and get honey, they ought to be carefully fed, or they will starve in their hive.

10. Some fine day in spring lift the hive off the bottom board and scrape that clean, wash and dry it, then replace the hive; and you will have saved the bees an immense deal of trouble, and added to their health and comfort.—APIARIAN *in Field.*

CANADA AND STATE SHOWS, 1856.

Canada East	Three Rivers	September 16 to 18.
Canada West	Kingston	September 23 to 26.
Tennessee	Nashville	October 13 to 18.
Vermont	Burlington	September 9 to 12.
Virginia	Wheeling Island	September 17 to 19.
Ohio	Cleveland	September 23 to 26.
Am. Pom. Society	Rochester	September 24 to 30.
Michigan	Detroit	September 30 & Oct. 1, 2, 3.
New York	Watertown	September 30 & Oct. 1, 2, 3.
Illinois	Alton	September 30 & Oct. 1, 2, 3.
Pennsylvania	Pittsburgh	September 30 to October 2.
National Agricultural Show	Philadelphia	October 7.
California	San Jose	October 7, 8, 9.
Wisconsin	Milwaukie	October 8 to 10.
New Hampshire		October 8 to 10.
Iowa	Muscatine	October 8 to 10.
North Carolina	Raleigh	October 14 to 17.
Georgia	Atlanta	October 20 to 25.
Indiana	Indianapolis	October 20 to 25.
Maine		October 28 to 30.
Alabama	Montgomery	November 11 to 14.

VEGETABLE POISONS.

BY MRS. LOUDON.

At this period, when so much attention has been directed to the subject of vegetable poisons, from the frequent deaths that have occurred, I have thought that my readers might be interested in learning which of the showy inhabitants of our English gardens are most inimical to human life. Unfortunately, there is nothing in the outward appearance of these plants to indicate their deadly nature. They are generally bright in color, and sometimes very elegant in form; and the greater part of them are common in every flower-garden. Among these last may be mentioned the Aconite, also called Wolfsbane, or Monkshood, of which there are various species, all ornamental. The common Monkshood is well known from the amusement children find in pinching the flowers, so as to make the curiously-folded petals start from beneath the hood like two great eyes. These petals look like gigantic and crested stamens, and the hood, which is only a calyx, is generally supposed to be formed of the petals of the flower. The real stamens are, however, the centre of the flower, and they surround a little group of three or five seed vessels or follicles, which, when ripe, burst open at the top to discharge their seeds. The leaves are deeply cut, and the stem, which is tall and upright, is thickened at the base, where it joins the root, so as to give it the appearance of celery; and persons have been poisoned by eating it in mistake for that vegetable. The part of the root which is buried in the ground is also thickened, and resembles horse radish so much, that a party of friends dining together at Dingwall, in Scotland, were poisoned by the cook fancying it was a root of horse-radish she was scraping, when she was, in fact, offering to her master's guests a most deadly poison. There is nothing in the taste of this plant to warn the eater of it of his danger. It is slightly acrid, but not more so than other plants that are perfectly harmless. The Aconite is very nearly allied to the Larkspur, which is also poisonous, the seeds acting as a violent emetic. The Anemone is another poisonous plant, from its acridity and its emetic qualities; and the juice of its leaves will raise blisters. This is also the case with various kinds of Clematis and Ranunculus. The juice of the common Buttercup is extremely acrid, and the species with a creeping, fleshy root is a deadly poison to human beings, though pheasants seem to eat it with impunity, as its tubers have been found in the crops of birds that have been shot.

The seeds of Peony will occasion symptoms resembling cholera, with violent sickness; and the juice of the Poppy is, as everybody knows, highly narcotic. Opium is prepared from the capsule, or seed-vessel of the large White Poppy, which is cultivated for that purpose to a great extent in the East, particularly in Turkey, Persia, and some parts of India.

The capsule of the Opium Poppy is much larger and more fleshy than that of the Corn Poppy, and this fleshy substance is full of a milky juice, which hardens by exposure in the air into a kind of gum which we call opium. In the countries where opium is cultivated as an article of commerce, the Poppies are grown in large fields, and planted in rows to enable the people to reach their heads easily. When the petals of the flowers have fallen, and while the Poppy-heads are yet green and full of juice, the cultivators of opium wound the capsules with a kind of lancet having too blades, so that two cuts are made with each stroke. The milky juice which exudes hardens in the course of the night, and is scraped off the next morning with a blunt knife, before the sun has had time to melt it. It is afterwards kneaded into cakes, and packed in leaves for sale. Laudanum is opium steeped in spirits of wine; and paregoric is laudanum with aniseed and camphor added to it; morphine is the sedative part of opium separated from its intoxibating quality. In England all Popies are more or less narcotic, and of course poisonous; but the milky juice is not secreted in sufficient quantities to render it worth while to cultivate the Poppies for their opium.

Nearly all the umbelliferous plants are poisonous in a wild state. Even Celery is only rendered wholesome by cultivation. Wild Chervil is also poisonous, but the cultivated kind is eaten in salads. Of all the umbelliferous plants, Water Hemlock, or Cowbane is, perhaps, the most deadly. It grows in marshy land in several places in the neighbourhood of London; and, as it has no bad smell, it is sometimes eaten by cows, who die immediately. Children are also frequently poisoned by chewing it. It is an acrid poison, and destroy life by burning the coats of the stomach. Fool's Parsley is very dangerous, as it often comes up in the gardens with the other parsley—and when both are quite young it is not easy to tell the difference between them. When in flower, it is distinguished by two long beards hanging from each flower, while the common parsley has

none. But even when not in flower, the two kinds may be distinguished by the leaves of the Fool's Parsley being of a darker and bluer green, and having a smell of garlic. Hemlock is also often mistaken for Parsley.

Water Parsnip is sometimes mistaken for Skirret, the tubers of which are often eaten in Scotland under the name of Crummock. The Water Parsnip, however may be known by it always growing in water, which the skirret does not. The Water Dropwort is still more dangerous from its strong resemblance to Celery; and this last plant is so poisonous that many persons feel giddy only from smelling it.—*London Newspaper.*

DISCOVERIES OF THE AGE.

Some of the most wonderful result of human intelect have been witnessed in the last fifty years. It is remarkable how the mind of the world has run into scientific investigation, and what achievements it has effected in that short period.

Fulton launched the first steamboat in 1807, now there are 3,000 steamboats traversing the waters of America only.

In 1825 the first railroad was put in operation in Massachusetts.

"In 1800 there was not a single railroad in the world. In the United States alone there are now 8,797 miles of railroad, costing $286,000,000 to build, and about 22,000 miles of railroad in England and America.

"The electric telegraph had its beginning in 1843.

"The electro-magnet was discovered in 1821; and electrotyping is a still later invention.

"Hoe's printing press, capable of printing 10,000 copies an hour, is a very recent discovery.

"Gas light was unknown in 1800; now every city and town of any pretence is lighted with it, and we have the announcement of a still greater discovery, by which light, heat, motive power, may all be produced from water, with scarcely any cost.

"Daguerre communicated to the world his beautiful invention in 1839.

"Gun cotton and chloroform are discoveries but a few years old.

"Astronomy has added a number of new planets to the solar system.

What will the next half century accomplish? We may look for still greater discoveries; for the intellect of man is awake, exploring every mine of knowledge, and searching for useful information in every department of art and industry."

GATHERING CLOVER SEED.

A writer in the Valley Farmer gives the following method of collecting clover heads.

"We once made and used for many years, a very simple machine for gathering clover heads with which a man and horse can go over and gather the seed from double the quantity of land in a day than he can cut over with a scythe; and when the heads only are gathered, they require no other labor, except drying, to prepare them to run through the hulling and cleaning machine. Any tolerable workman can make one of these machines in two days. It is upon the following plan: Make an ordinary sled with sides or runners 14 inches wide and 6 feet 6 inches long. These may be placed 5 or 6 feet apart, and secured together with two cross pieces only at the back end, leaving the forward part open to the length of 3½ or 4 feet; then a box is made to nearly fill the width between the runners. The box is 4 feet long and 15 inches deep, with the forward end open. To the cross pieces at the bottom of the box, at the forward end, teeth of hard wood are secured so as to project about 12 inches; they should be ¾ of an inch thick and 1 inch wide on the top and made a quarter of an inch narrower or beveling on the underside These teeth are placed *three-sixteenths* of an inch apart, so as to form a comb. If the upper side of teeth were capped with hoop-iron, neatly fitted, it would be better.—This box is hung between the sides of the sled upon two gudgeons or pins two inches in diameter, just as a cannon is hung in its carriage, With two handles, four feet long, secured to the box and projecting behind, the box may be moved on the pins so as to lower or raise the teeth to adapt them to clover of any height. A man with a horse can strip the heads from four or five acres of clover in a day with this machine, and collect it in the box. With one of these machines a farmer can gether as much seed in a day as would be required to seed forty or fifty acres. It needs no hulling or cleaning unless it is designed for market. Some prefer to sow the seed in the chaff to that which is cleaned.

WHERE AND HOW GUANO IS OBTAINED.

The *New-York Evening Post* furnishes the following interesting account:—

"An intelligent gentleman, who has been employed in loading a ship with guano at the Chincha Islands, on the coast of Peru, has communicated to us some interesting information with respect to the trade. He has been at the island at three different times, and nearly six months in all. The last time he was there was in the fall and summer of 1855. He says that he found at times five hundred sail of vessels together, loading with guano, generally large ships. One ship was 4,500 tons burden. Not less than three hundred sail of vessels are now at the island, loading for the United States, Spain, Portugal, France, and English and German ports. Some cargoes are sent to Constantinople and some to Russian ports in the Black Sea. This was before the war in the Crimea. The Russian trade will now open again, both from the Black Sea and the Baltic. Freights are high; £6 10s. are often paid per ton for Liverpool and Hampton Roads. Generally ten shillings more a ton freight is paid to Europe. At the rate at which guano is now shipped from the Chincha Islands, it will be exhausted in six to eight years—not a ton will be left. Twenty thousand tons are sometimes removed from the islands in a single day.

"These islands are about one hundred miles north from Callao. The longest of the group is two miles in length and a quarter of a mile wide, but contains only a small quantity of guano. The most northerly island is the smallest, being about a mile in length by half a mile in breadth. Guano on this island is two hundred fifty feet deep. The island contains a Chinese settlement of Coolies, about a thousand in number, who are employed in digging guano and loading the vessels. A task is given them each day, and if the gang fail to get out the given number of wagon loads, of two tons each, a day, their bondage is continued a longer period, to make it up; so many months or days being added as wagon loads are wanting.

The Coolies are cheated into the belief that they are to be shipped from China to California and the gold diggings, and are further deceived by the offer of a free passage. The knowing Chinese, or the Mandarins, ship them. The ship-master carries them to the Peruvian government for his freight money. All this time the Chinamen are kept in irons and confined below in the ship. The Peruvian government purchase the cargo of living Coolies, paying the Yankee or English captain a round sum for his care, diligence and labor in stealing Chinamen from their homes to be sent into the *guano* mines of Peru for life, or for five to seven years, and to be held in bondage or peonage to pay their passage to the glorious land of the *Meas.*

The guano is hard, and can only be broken up with the pickaxe. It is then broken and shoveled into the wagons, and rolled from the shutes into the vessels.

No person can go upon or come away from the islands without a pass, as they are guarded by more than one hundred armed soldiers belonging to Peru.

The Peruvians send all their prisoners of state into the guano mines, say about two to three hundred, where they are let out to work by day, and at night are shut up in their cells, with only two meals per day. These prisoners are generally provided with wives or female companions, who have been permitted to go to the islands, and hire themselves out for work and prostitution. They are mostly Indians, natives of the country. There is no fresh water on the islands, and each vessel is compelled by law to carry a ton of fresh water there for every hundred tons burden of the ship. The oldest captain in the fleet from each nation is appointed Commodore, and hoists his flag as such on his ship, where all disputes are settled. Indeed the municipal laws of the islands and the fleet are decidedly of Yankee origin.

The islands are about ten miles from the main land, and are composed of new red sandstone. The guano is not all bird dung, but is largely composed of the mud of the ocean, that brought from Peru, is so, at least. When anchors are hoisted into the ship from the holding grounds of vessels along the Peruvian coasts, large quantities of mud of a greenish white color, are brought up, and this mud, when dried, makes guano equally good with the guano taken from the islands.

The birds and seals come upon the island when the people are not at work, but it does not appear that their dung or decayed bodies are more than a foot deep on any of the islands. Fish are taken in great abundance and about these islands, as are also seals, which come there in large schools. Sea lions also abound. The composition taken from the islands, called guano, is stratified, and lies in the same form it did before it was lifted up from the bottom of the ocean.

Our informant says that a geological examination of the islands will satisfy any man that the guano ships are bringing away from these islands a very different thing from the dung of birds or decomposed animals.

Gibbs & Bright, of Liverpool, have a lease of the Guano Islands from the Peruvian government for five years, which expires in 1857, but hope to get their lease renewed. This house pays the Peruvian government about $4.50 a ton for the privilege of taking all the guano from the islands, the government furnishing the men to dig the guano.

The ships that load at the island are mostly ships chartered to carry a cargo, or are sent there by the owners to take away a cargo, bought of Gibbs & Bright, who have the entire monopoly of the trade.

CHEESE MAKING.

A Correspondent of the Rural *New Yorker*, gives some account of the process of cheese making in one of the best cheese districts of New York, which may be of interest to some of our readers:—

"According to our experience we should set it (the milk when ready for the rennet) at 100 degrees. If the rennet is good, the milk will curdle hard enough to cut in 30 minutes. It should then be carefully cut with a curd cutter, made for the purpose. After the whey, which rises, is dipped off, (which is done by putting a strainer over the tub,) the curd should again be broken with careful handling, as too much squeezing works away the richest part of the curd, which will be readily seen by the whey being white. The whey first dipped off is put into a tin heater, set in a kettle of water, either heated by a dairy stove or an arch built in the dairy-room for the purpose; the former mode is preferable. While the whey is heating, there is ample time for working the curd fine, so that it will scald evenly. The heat of the scalding whey, after it is dipped on and well stirred with the curd, should be from 100 to 104 degrees. A thermometer is very convenient for ascertaining the degree of heat needed. When the curd feels a little tough, or will squeak between the teeth, it is sufficiently scalded. It should then be dipped from the tub to a sink with a rack raised enough from the bottom to let the whey pass off through a tin pipe at one end. A strainer is placed over the sink for the reception of the curd. Work it till the whey is well worked out, when it is ready for the salt. The quantity of salt necessary can be ascertained as well by the taste as any rule. Some say one pound of salt to forty pounds curd which I think rather high.

As for mode of pressing; there are several kinds of presses, but the object should be to press the whey all out before the rind forms. The pressing should continue for twenty-four hours, in which time the cheese should be turned twice into clean cloths. When the cheese comes from the press, it should be greased and bandaged. The grease most suitable is made from whey cream, churned into butter, and dried in an iron kettle over a slow fire until it becomes clear like oil; then a little Annatto is added to give the cheese the proper coloring. Before putting on the bandage it should be dipped into the grease and rung out, to give it the color of the sides of the cheese. Cheese must be turned and greased every day, to keep them from moulding. Care should be taken that they do not crack, on account of the cheese fly, which is a troublesome insect among cheese, if not well attended to.

Misery of the Miser.—Of all the creatures upon earth, none is so despicable as the miser. It is not impossible that the profligate may have a friend, for their is usually left about him some touch of humanity—some one unbroken thread of the finer feelings of our nature; but the miser meets with no sympathy. Even the nurse who is hired to attend him in his latest hours loathes the ghastly occupation, and longs for the moment of her release; for although the death-damp is already gathering on his brow, the thoughts of the departing sinner are still upon his gold, and at the mere jingle of a key he starts from his torpor into a paroxysm of terror lest a superstitious attempt is being made upon the sancity of his strong box. There are no prayers of the orphan or widow for him; not a solitary voice has ever breathed his name to heaven as a benefactor. One poor penny given away in the spirit of true charity, would now be worth more to him than all the gold that the world contains; but notwithstanding that he was a church-going man, and familiar from his infancy with those awful texts in which the worship of mammon is denounced, and the punishment of Dives told, he has never yet been able to divorce himself from the solitary love of lust, or to part with one atom of his pelf. And so, from a miserable life, detested and despised, he passes into a drear eternity; and those whom he has neglected or misused, make merry with the hoards of the miser.

GIRDLED TREES—CATERPILLARS ON APPLE TREES, &c.

Messrs. Tucker & Son,—I observe in the *Country Gentleman* of June 5, an article from a gentleman who has lost several thousand trees by mice the last winter, and I see by the papers from different parts of the country, that immense damage has been done to fruit trees by mice. They were uncommonly plenty in this part of the country last winter, and have done much damage, where proper means to prevent has been neglected. For the benefit of the public, I will mention a preventive which I have used for a number of years, with good success. Take one gallon soft soap, one pound Scotch snuff, one pound sulphur, one tea-cupful of newly slacked lime, (the lime is used to make the others stick.)

Put the above in a kettle and make it scalding hot; stir it well to have it properly mixed, and if too stiff, add a little water, so that it may be applied to the trees by a large paint brush; one partly worn is best. It must not be made too thin, but so that considerable of the snuff, &c., shall stick to the tree. The time to put it on is before the snow falls. Before putting it on, clear away all the grass and rubbish around the trees, quite to the ground; then put on the above composition a little warm, all around, from the ground three feet high, and if any roots are bare apply to them also.

If any of the quite young trees or grafts near the ground, the bark of which should be quite smooth, so that the composition would be liable to be washed off by rain, in that case, dip a strip of cotton in the composition, and wind around. This is the best remedy against mice I have ever tried, and it is effectual against rabbits or goats; nothing loves snuff but foolish men and women. I have known a number who have lost their lives by the use of it.

While writing about mice I will mention a mode I have tried many years, to prevent them from destroying grain in the barn. Take the leaves of stinking elder and scatter between each layer of grain; one bushel of leaves will be sufficient to spread on a layer thirty feet square. Perhaps sweet elder leaves would answer as well, but I never tried them. To prove the efficacy of the leaves, I will state, having my barn well filled with grain on both sides of the floor, and leaves on the whole, except perhaps half a load on the scaffold over the floor, on which we had pitched, to throw it higher; there might be five or six bushels of grain, wheat and oats scattered. This was all cut to pieces, while not a peck of grain was lost in all the other parts of the barn. The labor of gathering the leaves and putting on is but a trifle.

I also observe in the same number of your paper, one of your correspondents from Connecticut, shows the great importance of destroying the worms on apple trees, and his method of doing it. I agree with him that fruit trees should be kept clear of worms or they will soon spoil them; but his method of burning them off is all wrong; it is expensive, takes much time, and the limb is killed by the blaze. I have tried burning, shooting with powder, oil and other ways; but my practice for many years has been with very strong soap suds, which is cheaper, done much easier, quicker, and is more effectual. Take about one quart of soft soap, put it in near a pailful of hot soft water; stir and fit for use. Take a light pole long enough to reach the worms on the tree. Tie on the end a piece of thick cloth with a strong twine around the pole; let a part of the cloth project over the end of the pole a few inches. Then dip the swab in the soap suds, and wipe off the nest or bunch of worms; if they have got considerably grown wet the nest with the swab before wiping it off, otherwise many of the worms will fall and again crawl up to the tree; but if they are touched by the soap suds it kills them almost instantly, as sure as fire. As soon as they appear on the trees they should be destroyed; the trees need to be examined frequently until the worm winds up, as some hatch later than others, and one kind make no webs, but stick on the large limbs or the body of the tree in bunches, and move on the tree from east to south and west with the sun. These are hatched later than those that make nests or webs. Apply the swab to these carefully, beginning at the bottom of the worms, for if they are disturbed before being wet with the suds, they will instantly spin down and escape. If the worms are killed every year in the orchard and neighboring orchards, and from wild cherry trees, of which they are more fond than apple trees, few will be left to turn to millers to lay eggs for the next year's brood. But where neglected they soon increase so as in some instances to make a whole orchard as bare of leaves as in winter; in that case, there will be no fruit, and the trees will soon die.

John T. Addams, *Plattsburgh, N. Y.*

FRUITS IN SUMMER.

By an arrangement of Providence, as beautiful as it is benign, the fruits of the earth are ripening during the whole summer. From the delightful strawberry on the opening of spring, to the luscious peach of the fall, there is a constant succession of delightful aliments; made delightful by that power, whose loving kindness is in all his works, in order to stimulate us to their highest cultivation, connecting with their use also, the most health-giving influences; and with the rich profuseness of a well-attended fruitary, it is one of the most unaccountable things in nature, that so little attention is paid, comparatively speaking, to this branch of farming.

It is a beautiful fact, that while the warmth and exposures of summer tend to billiousness and fevers, the free use of fruits and berries counteract that tendency. Artificial acids are found to promote the separation of the bile from the blood, with great mildness and certainty; this led to the supposition, that the natural acids, as contained in fruits and berries, might be as available, and being more palatable, would necessarily be preferred. Experiment has verified the theory, and within a very late period, Allopathic writers have suggested the use of fresh, ripe, perfect, raw fruits, as a reliable remedy in the diarrhœas of summer.

How strongly the appetite yearns for a pickle, when nothing else could be relished, is in the experience of most of us. It is the instinct of nature pointing to a cure. The want of a natural appetite, is the result of the bile not being separated from the blood, and it not remedied fever is inevitable, from the slightest grades to that of billious, congestive, and yellow. "Fruits are cooling," is a bye-word, the truth of which has forced itself on the commonest observer. But why they are so, they had not the time, opportunity, or inclination to enquire into. The reason is, the acid of the fruit stimulates the liver to greater activity in separating the bile from the blood, which is its proper work, the result of which is, the bowels become free, the pores of the skin are open. Under such circumstances, fevers and want of appetite are impossible.

How to use Fruits.—To derive from the employment of fruits and berries all that healthful and nutritive effect which belongs to their nature, we should

First—Use fruits that are ripe, fresh, perfect, raw.

Second—They should be used in their natural state, without sugar, cream, milk or any other item of food or drink.

Third—Fruits have their best effect when used in the early part of the day, hence, we do not advise their employment at a later hour than the middle of the afternoon; not that, if perfect and ripe, they may not be eaten largely by themselves, within two hours of bed time, with advantage, but if the sourness of decay should happen to taint them, or any liquor should inadvertedly be largely drank afterwards, even cold water, acidity of the whole mass may follow resulting in a night of distress, if not actual or dangerous sickness. So it is better not to run the risk.

An incalculable amount of sickness and suffering would be prevented every year if the whole class of desserts were swept from our tables during summer, and fresh, ripe, perfect fruits and berries were substituted, while the amount of money that would be saved thereby, at the New York prices of fruits, would in some families amount to many dollars, dollars enough to support an orphan child, or support a colporteur a whole year, in some regions of our country.—*Hall's New York Journal of Health for July.*

Sulphur is a great institution. Mingled with iron it seriously weakens, and in fact the great problem in iron making is how to get rid of it, or to avoid introducing it with the fuel. Mingled with saltpeter it forms gunpowder, as symbolical of war as is the iron manufacture of the arts of peace. Mingled with India rubber it vulcanizes it into "a kind of vegetable metal," capable of becoming harder instead of softening with heat. Mingled with ore in the earth, it forms the rich "galena," the brilliant "pyrites," or the valuable sulphurets, but mingled with the gases which escape in smelting the same, it destroys vegetation and proves very mischievous generally.

Mingled with oil, a late patent assures us the product is a cheap gum, not unlike rubber, very valuable for its water-proofing qualities, and unrivalled as a protector for clothing or as a coating for porous and crumbling stone. Another inventor has discovered that melted with bone dust and again ground, it makes a most powerful fertilizer, and yet another that its fumes are just the thing for manufacturing jerked beef. Diffused to a certain extent in water, medical properties are developed, and dyspeptics rush headlong to "the Springs." Altogether, sulphur is fully entitled to be considered one of the prime staples which go to make a world.—*N. Y. Tribune.*

A STEAM PLOW FOR THE PRAIRIES.

In the *Prairie Farmer*, Chicago, Illinois, of the 10th inst., Bronson Murray proposes that a premium of $50,000 be raised by subscription of one hundred persons, paying $500 each, to be awarded for a perfected steam plow suited to farm use, and capable of performing the labor at an expense not greater than the average cost of performing the same work under the present system. He offers to be one of the hundred subscribers, and wishes the subscriptions secured to the Illinois State Agricultural Society, and the premium to be offered by it, under such rules as an Executive Committee may direct.—He asserts that there is not a farmer who cultivates 500 acres of prairie land, but can well afford to unite in the proposed subscription. He is confident that the steam plow would long since have been invented, had the capital of mechanics been equal to their inventive genius. In this opinion we cordially agree with him. It would be a most inestimable boon to farmers on the prairies if they could plow their stubble lands quickly after the crops are removed. The benefit of the steam plow to them would be quick plowing,—doing as much by one plow in one day as is now done by five or six with teams, which cannot be driven beyond a certain speed. When Mr. Murray came to the prairies fourteen years ago, there were no harvesting machines in use; but he felt confident they would soon be, and this determined him in settling in Illinois. His hopes have been realized regarding harvesting machines, and we trust they will also be realized respecting a prairie steam plow. Its working expenses may be as great as plowing by present modes, but if it does the work in less time, with fewer hands, (as we understand it), farmers will be satisfied.

At a meeting of the Farmers' Club, held at the American Institute, New York, on the the 9th inst., Judge Meigs read an account of an English farm locomotive of 16 horse power. It weighed 9 tons, was stated to move easily over soft fields, and ascend pretty steep inclines. Its inventor had spent $50,000 in making experiments, and he was now satisfied with its performance. It draws a gang of plows with ease. Our friends in Illinois would like a steam plow of much less weight than 9 tons; it is too heavy for general use, but no doubt smaller ones on the same principle can be constructed.

TREATMENT OF THE HAIR.

We may be venturing on a delicate subject perhaps, but the following brief extract from an old London Magazine, expresses our views too nearly to pass uncopied:

If the ladies will trust to our science on the subject of hair, in the first place we can assure them, most confidently, that so far is it from being that oils and pamatums increase the lustre of the hair, their effect is to diminish that polish which it naturally possesses; while, whatever gloss they may give to hair which is naturally dull, is false, and, like all other falsities, disgusting. Absolute cleanlines, by means of water alone, to commence, followed by brushing in the direction of the hair itself, in a dry state, is the true method of giving to the hair all the polish of which it is susceptible: and it is the effect of oils of all kinds to disturb or injure this; to say nothing of the disgust and necessary dirtiness of greasy hair. It is the effect of oils also to prevent it from curling; and this object is most effectually obtained, if without artificial means, by curling it when wet, and suffering it to dry in that state. And as it happens that almost all hair has a tendency to curl in one direction rather than in another, it is useful to study that tendency, so as to conform to it in the artificial flexure given. As to artificial applications, the whole of the so-called curling fluids are mere impositions; while one, which is really effectual, and at the same time inoffensive, is a weak solution of isinglass, by which a very firm and permanent form can be given to the hair.

* * * * * * *

The fact is, that the whole is an imposture; oils, pomatums, and all; bear's grease, Macassar, and Rowland, huile, a la tuberose, huile antique; huiles and pomades, divine or whatever else. Excepting so far as pomatum may be used for stiffening or compacting the hair into dirty or greasy masses, or oils for converting the easy and loose flow of nature's ornamental locks into nasty rat's tails, the whole is but a method of extracting money from vanity and fashion. It is but a rivalry of the stinking Hottentots, a relic of savage barbarism. As to the chemistry itself, if the ladies *will* make themselves greasy and disgusting, olive oil, alone, is the only oil that is necessary, hog's lard is the only pomatum; and if it is not sufficiently stiff, let it be stiflened to the taste by wax. It is an apothecary's plaster, or an apothecary's ointment, according to its consistence; it is

neither more nor less. The rest all perfume, nothing more; and the lady's maid, or the lady herself, who desires to have a greasy head, may save her money and her care, by sending down to the cook for a little oil from the flask, or a little lard from the bladder; or else to the apothecary, for a little simple ointment, preparing to her own fancy.

However, as long as female vanity exists, (and when will it cease?) we write in vain. The five hundred oils and pomatums will go on being made, and the angel who loves herself better than cleanliness, will go on making herself greasy and odorous. But it is all for the best, or how should trade flourish, how should money circulate from pockets that are too full, to pockets too empty?"

COL. MORRIS' SALE OF STOCK.

We promised some particulars in this number of the great sale of thorough bred stock by Col. Morris of Mount Forham, N. Y., but we find the details as stated in the American journals, too lengthy for our columns. We subjoin a short notice of the sale by Col. Johnson, Sec. of the N. Y. State Agricultural Society:—

The weather was all that could be desired, each day, and the attendance very large. The first day, in addition to the usual attendance upon such occasions, more than two hundred ladies from New York city and Westchester Co. were present, and the choice Short-horn cattle and South Down sheep of Col. M. were exhibited in his spacious grounds, and attracted, as they deserved, most glowing comments of admiration from the brilliant assemblage. Ladies unused to such exhibitions admitted that the attractions were worthy of attention—and we doubtless shall be favored at our State and County Exhibitions with assemblages like this.

The Short-horn and Devon bulls were sold the first day—the second day, the Devon cows, heifers and calves, South Down sheep, and Berkshire and Essex swine. I give you the price of bulls, cows, &c., and the aggregate amount of sales. The prices are most encouraging for breeders, and it shows that the farmers of our country not only appreciate good stock, but have the means of securing it. It is most gratifying to Col. Morris that he retires from a portion of his breeding (confining himself hereafter to Short-horns alone,) with a reputation certainly equal to any in the Union—and with a sale of stock at prices unprecedented, taken as a whole, in this country. I inclose you a list of the sales, in addition to the general summary, below.

Thirteen Short-horn Bulls	$4,810
Two sold previous to public sale	675
Six Devon Bulls	1,350
Thirteen Devon Cows, Heifers and Calves	4,160
South Down Sheep	7,195
Berkshire Swine	970
Essex Swine	357,50
Suffolk Swine sold	177
Two barren Cows reserved to fatten	500
Three South Downs, do.	150
Three Berkshire and Essex Hogs	150
Total	$20,494,50

To Cure Scratches in Horses.—Take three table-spoonfuls of common tar, two table spoonfuls of lard; put them in a vessel, and warm them gradually, until soft enough to mix thoroughly; then add a teaspoonful of gunpowder—mix it well with the tar and lard. Put this mixture on at night, after washing and drying the horses feet well. If the weather is wet, keep the horse in the stable all night, or under shelter, to prevent the mixture from washing off. I have never seen a case that required more than one application to cure it perfectly.

Hoare, in his treaties on the vine, gives a striking exemplification of the instinct of plants. A bone was placed in the strong, but dry clay of a vine border. The vine sent out a leading, or tap-root, directly through the clay, to the bone. In its passage through the clay, the main root threw out no fibres; but when it reached the bone, it entirely covered it, by degrees, with the most delicate and minute fibres, like lace, each one sucking a pore in the bone. On this luscious morsel of a marrow bone would the vine continue to feed as long as any nutriment remained to be extracted.

THE FOOT ROT.

A. B. Dickinson, of Steuben county, New York, delivered an address some two years ago, before the Cortland County Society, in which, among other things, he spoke of his mode of curing the foot rot in sheep, and foul in the feet of cattle. He said:—

"I have had some experience for twenty-five years, with what I once considered as one of the most injurious diseases to cattle, and more especially to sheep. I now regard it as of little or no consequence, and I will trouble you with one of twenty-five year's operations, and to that end will take the year in which the disease was most malignant, which was in 1850. I purchased in that year more than 30,000 sheep, and had not less than 1,000 head of cattle upon my farm. During the pasturing season, more than one half of my sheep were affected with the rot, and because they were thus diseased, I purchased so largely. Men came all the way from Ohio to sell me their sheep, expressly on this account. My remedy is simple and plain, and my cure equally sure. I make a three cornered field, and at the pointed corner I make a lane; in this lane or neck of the field, I set a trough twelve feet long, twelve inches deep, of the same width, in which I fasten some scantling, substantially, flaring out, then cover the scantling with boards, so that only one sheep or steer can go through the trough at a time. In the trough I place 50 or 100 pounds of blue vitrol, fill and keep it as full of water as it should be, covering the liquid over with straw, and set the sheep or cattle marching through. By leading a tame ox the rest will follow. A good shepherd dog will start the sheep through, and one man with a well trained dog, can drive through 10,000 in one day. This vitrol will kill the disease. It will make and replace hoofs, or parts that have rotted off. With cattle, it is not so malignant as with sheep, but either may be cured without stopping their growth, if taken in time. If it has been of long standing, feed sulphur freely in your salt."

Hints on Feeding Milch Cows.—Thompson, in his work entitled "Experimental Researches on the Food of Animals," says that a cow, if fed for two days on an insufficient quantity of food as indicated by loss of weight, and dimunition of milk, will require at least double that time to reach the condition from which it deteriorated, and the reason of this is obvious, because the particular starvation has caused it to lose a portion of the substance of its body, which requires a longer time to re-establish than to pull down.

This rule, he says, is applicable to the dietary of men as well as to inferior animals. An increase of labor should always be accompanied with an increase of food, both at sea and in prison. A short walk, for one confined to a solitary cell, calls for some augmentation of food. A slight increase of temperature, or the irritating influence of insects, will effectually diminish the milk of a cow, and indicates the propriety of increasing the amount of fodder.

During his experiments on feeding milch cows, he found that the milk of one day was derived from the food eaten the day previous, and that it takes at least sixteen hours for the digestive organs of the cow to fully take up all the nutritive matter which she feeds upon.

Philosphy of Light Digestion.—In a nietetic point of view, it would be well for weak stomachs to remember that wild birds are more nutritious than their domesticated cousins, and more digestible. But the white breast or wing of a chicken is less heating than the flesh of winged game. Other game—such as vension, which is dark-colored, and contains a large proportion of fibrine—produces highly stimulating chyle; and consequently, the digestion in an easy and rapid affair for the stomach. But, though the whiter meats be detained longer in the stomach furnish less stimulating chyle, and be suffered to run into acetous fermentation, their lesser stimulating quality may recommend them when the general system is not in want of a spur. Meats are wholesome or otherwise, less with reference to themselves than to the consumer: "To assert a thing to be wholesome," says Van Swieten, "without a knowledge of the condition of the person for whom it is intended, is like a sailor pronouncing the wind to be fair, without knowing to what port the vessel is bound."—*Dr. Doran.*

Fattening Lambs.—A writer in the Maine *Farmer* who had been in the habit of feeding grain to his ewes, for the purpose of fattening his lambs, without much visible effect, at last resolved to try feeding of the grain to the lambs themselves, and accordingly made troughs and filled them with oats, which he keeps away from the sheep, but so situated that the lambs alone can get at them. In this way he has lambs at ten weeks old which dress sixteen pounds in weight.

Coal.—It is estimated that the extent of the Cumberland coal, including Westmoreland and Yorkshire, has an area of some 200 square miles. It has been worked for a lengthened period, and does not give any signs of exhaustation. But the Cumberland coal field is one of the smallest, both in extent and thickness, for it is only the 1-60th of the whole area of coal in the British isles: and while its workable thickness is only some seventeen feet, the several seams of the South Wales coal field are 100 feet thick, the thickness of the Lancashire coal is 150 feet, and in some of the Scotch coal fields there is a workable thickness of 200 feet. It has been calculated that the single magnificent coal field of South Wales, of 1,200 square miles, would supply England with fuel for at least 2,000 years, after the whole of our English mines are worked out. After that I fancy you begin to breathe a little more freely, but a tithe has not yet been told, for to the British coal fields of 12,000 square miles, you may add for the rest of Europe 10,000, for British North America 18,000, and for the United States of America the really astonishing extent of 113,000 square miles, almost untouched, and the whole together, as yet, yielding only about one-half of what the British islands are doing alone. Besides an immense coal range on the eastern coast of Australia, the extent of which is unknown, may reach beyond all conception, and the importance of which in the future history of our race may come to be truly marvellous.

Fibrous Slabs.—The dome of the new reading-room at the British museum, now in course of completion under the direction of Mr. Sidney Smirke, is being lined with slabs or sheets of fibrous material, for which a patent has been obtained, and which, combining many of the properties of wood, is adapted to almost every purpose to which the various descriptions of wood are applied. It is also applicable to many purposes for which marble, slate, lath and plaster, or internal brickwork are now used; and the price, we are told, will not average more than one half the cost of wood-work, or other materials now in use. This fibrous material can be manufactured into sheets or slabs of any required thickness length, or width. They are now made in sizes of 13 feet by 7 feet; but these dimensions may be greatly increased. It appears to be uninflammable; a non-conductor of heat or sound; free from dry rot, shrinking, expanding, splitting, or winding; easily worked or bent, and is applicable for large panels, ceilings, floors, and partitions. Each panel at the British Museum, composed of three pieces, is 22 feet long by 11 feet 6 inches wide; and these in their spherical form, are raised from the ground to a height of 100 feet,, and fixed in one piece to the roof. We have probably said enough to show that this new material deserves the attention of all who are engaged in building operations.—*The Builder*

To Clean the Face of Soft Mahogany, or other Porous Wood.—After scraping and sand-papering in the usual manner, take a sponge and well wet the surface to raise the grain; then take a piece of fine pumice-stone, free from stony particles, and cut the way of the fibres; rub the wood in the direction of the grain, keeping it moist with water; let the work dry; then if you wet it again, you will find the grain much smoother, and it will not raise so much; repeat the process, and you will find the surface perfectly smooth, and the texture of the wood much hardened; by this means, common soft Honduras mahogony will have a face equal to fine Hispaniola. If this does not succeed to your satisfaction, you may improve the surface, by using the pumice-stone with cold-drawn linseed oil, in the same manner as you proceeded with water; this will be found to put a most beautiful, as well as durable face to your work, which may then be polished or varnished.

Currant Dumplings.—Pick and wash a pound of currants, dry them, and lay them on a plate before the fire. Chop a pound of suet very small and put it into eight spoonfuls of flour, with two tea-spoonfuls of salt, and three of ginger; now add the currants and mix all well together, then beat up four eggs with a pint of milk, and add this by degrees to the other ingredients, and make it into a light paste; roll it up into balls as large as a turkey's egg, with a little flour; flatten them a little and put them into boiling water; move them gently, that they may not stick together. Half an hour will boil them.—*Germantown Telegraph.*

To Preserve Gooseberries.—Take full grown gooseberries before they are ripe, pick them, and put them into wide-mouthed bottles, cork them gently with new, soft corks, and put them in an oven, from which the bread has been drawn; let them stand till they have shrunk nearly a quarter; then take them out and beat the corks in tight, cut them off level with the bottle, and rosin them down close.—Keep them in a dry place.

How to Bathe on a Summer's Day.—Many erroneous notions prevail respecting the use and properties of the warm bath. To many persons the idea of submersion in warm water, on a summer's day, would be preposterous; but if it be rationally considered, it will be found that the warm bath may be taken with equal or perhaps greater benefit in summer than in winter. During hot weather, the secretions in the skin are much increased in quantity, and consequently a greater necessity exists that it should be kept perfectly free from obstructions. Another prevailing error respecting the warm bath is, that it tends to relax and enervate the body; for experience has sufficiently proved the fallacy of the opinion, and many physicians have prescribed its use to patients laboring under debility from disease, none of whom experience such effects, but have all felt invigorated, and mostly restored to health and strength. Many persons are deterred from using the warm bath, especially in winter, from fear of catching cold; but this fear is groundless, for it has often been found that the warm bath, by increasing the circulation on the surface of the body, render it more capable of withstanding the effects of cold than it otherwise would have been.

Currants for Wine Making.—The red currant (or red Dutch) for wine making, gives a higher flavor than the white, and is considered a better producer. One acre of currant bushes, set 4 feet apart, would in due time produce 25 bushels of fruit, and might be made to grow 50 bushels, that depending upon the soil and the manner of cultivation. Three gallons may be obtained from a bushel of good ripe fruit. Make the wine in the same manner that you would a barrel of good sweet cider, with the addition of from 3 to 4 pounds of sugar to the gallon, fermenting off the pomace until it is entirely clear, after which it should be racked off into tight barrels and there remain any desirable time to become ripe and firm. As to the price of the article in market, the deponent saith not.

To Prevent Jams from Graining.—A correspondent informs us that to prevent Jams, Preserves, etc., from graining, a teaspoonful of cream of tartar must be added to every gallon of the jam or preserve.

Milk Regularly.—Cows should be milked at regular intervals of twelve hours, as near as possible, especially during the hot summer months. Cows then feed mostly in the morning and evening, choosing to rest in the cool shade through the middle of the day; hence they should be milked and turned out before sundown.

Canada Thistles and White Daisies.—Willard Day, Esq., of Brooklyn, informs the *Homestead* that these nuisances may be *destroyed by one mowing*, if done *during a warm rain*. Mr. Day has satisfied himself of this by repeated successful experiments. The principle of its action, no doubt, lies in the decay of the roots consequent upon the filling of the hollow stems with water.

Colza.—The introduction of Colza, as an oil producing plant is being agitated among some agriculturists at the East. It is said that the increasing consumption of oils of all kinds, and the great rise in their price, render it desirable that rape and colza should be tried as plants from which large profits may be secured, both for their oil and use in feeding and fattening stock.

The Maine Cultivator says:—"When a cucumber is taken from the vines, let it be cut with a knife, leaving about the eight of an inch of the cucumber on the stem, then slit the stem with a knife from its end to the vine, leaving a small portion of the cucumber on each division, and on each separate slit there will be new cucumbers as large as the first. Those wishing to raise large quantities of this article for pickles, will do well to try the experiment."

Salt for Wheat.—Theodore Perry says, in the *Prairie Farmer*, that he sowed one and a half bushels of salt upon one-half of a ten acre field, just after seeding it with Spring wheat; and the result was, that the salted portion was ready for the sickle five days earlier than the unsalted part; and not a particle of rust, scab, or smut could be found, and the increase of crop he estimated at five bushels per acre.

Fruit.—A cultivator of fruit, whose good example is referred to in the *New England Farmer*, keeps a circle of several feet around the roots of every tree clear of grass, and enriches it with chip manure, and several other kinds of fertilizing substances. He has very large crops of most excellent fruit, which he states, brings him more money than any of the neighbouring farmers obtain from all their crops.

TREES.—If now, in regard to any given tree, or kind of tree, it be asked, "How long does it naturally live?" the proper answer will be (contrary, however, to the common belief), that there is no set limit to the age it may attain, or the number of years it may live, and no actual limit other than that resulting from purely accidental or extraneous causes; because, according to the theory now advanced as to the nature of trees, there is no natural limit to the annual propagation from buds of the individual plants composing the tree. According to this view, the observation of Richard, to wit, that the cedars of Lebanon appears to be "indestructible," is perfectly intelligible, involves no violation of the principle that all living beings are subject to the law and the dominion of death, and is applicable, besides, to all trees. And if it be asked, in respect of any given tree, "What is the size to which it naturally grows?" the proper answer will be (contrary, again, to the popular belief,) that there is no determinate limit thereto, and no actual limit, except from such extrinsic causes as may prevent the formation of buds, or the evolution from them of new plants. If, however, the like questions be asked, not in respect of individual trees, but of individual tree plants (as these may well be called), of the oak, the elm, the fir, viewed simply as plants, and independently of their parasitic relations to others of their particular species and community, very different answers must be returned. The answer to the first question will be, that they live, one and all of them, only a single year; and that, as regards their longevity, they stand on precisely the same footing with confessedly annual plants. And in answer to the second question, it may always suffice to observe, that as they all attain their maturity within the year, so the natural size of any of them may be accurately determined by observation of the seedling plants of its kind in the forester's nursery, or of the yearly shoots issuing from the buds of any healthy tree of its kind; and, in general terms, that while subject to some variety, it does not in any species exceed a few inches, or at the utmost a very few feet, in length.—*Alexander Harvey.*

AGRICULTURAL ODE.

BY WM. C. BRYANT.

Far back in ages
The plow with wreaths was crowned,
The hand of kings and sages
Entwined the chaplet round,
Till men of spoil
Disdained the toil
By which the world was nourished,
And blood and pillage were the soil
In which their laurels flourished;
Now the world her fault despairs—
The guilt that stains her story,
And weeps her crimes amid the cares
That formed her earliest glory.

The throne shall crumble,
The diadem shall wane,
The tribes of earth shall humble
The pride of those who reign,
And war shall lay
His pomp away;
The fame that heroes cherish,
The glory earned is deadly fray
Shall fade, decay and perish.
Honor waits o'er all the earth,
Through endless generations—
The art that calls the harvest forth,
And feeds the expectant nations.

Mr. John Spencer, of Whitby, whose South Downs was so much admired at the Cobourg Fair, informs us that he has just received from England a supply of the latest improved breeds of Hampshire Down Sheep, selected with much care and expense by his son in England. They were purchased from the celebrated flock of William Taunton, Esq., who has gained many First Prizes at the Meetings of the Hampshire Agricultural Society, for five or six years past, and who offers to show 200 Hampshire Down Lambs, against any in England.

NOTICE.—We will send, during this month, accounts to the various Agricultural Societies who are indebted to us, and we hope they will meet with a ready response. The Government Grant has been paid to most of the County Societies; and there can be now no excuse for delay in liquidating the debts of the Societies. We have to pay cash for our paper and printing, and trust that our friends will see the necessity of promptly paying their accounts.

ERRATA.—We regretted to observe several typographical errors in the communication of the Hon. A. Fergusson published in our last. It was not seen by the Editor, and the writing of the hon. gentleman being a little affected by his age, the mistake was not detected by the proof-reader. The Kyloe breed of Cattle is, throughout, called *Kylos*, which those acquainted with the subject will at once see is an error of the press. The other mistakes are less important.

BUREAU OF AGRICULTURE AND STATISTICS,
Toronto, 25th July, 1856.

TO EMIGRANTS AND OTHERS SEEKING

LANDS FOR SETTLEMENT.

THE PROVINCIAL GOVERNMENT have recently opened out three great lines of Road, now in course of completion, and have surveyed and laid out for Settlement the Lands, through, and in the vicinity of which those Roads pass.

The Roads, as advertized by the Agents of the Government, appointed to the respective localities to afford information to the Settler, are known as "the Ottawa and Opeongo Road," "the Addington Road" and "the Hastings Road."

THE OTTAWA AND OPEONGO ROAD

Commences at a point on the Ottawa River, known as "Ferrall's," a little above the mouth of the Bonchere River, and runs in a Westerly direction passing through the northerly part of the County of Renfrew.

It is intended to connect with this road a projected line of road known as "Bell's Line" leading to the Lake Muskako, and Lake Huron, by a branch which will diverge from the Opeongo Road in the Township of Brudnell, at a distance of about 53 miles from the River Ottawa, forming with "Bell's Line," a great leading road, or base line from the Ottawa to Lake Muskako, 171 miles in length, passing through the heart of the Ottawa and Huron Territory, and opening up for a settlement a vast extent of rich and valuable land.

This road, and the country through which it passes, now open for settlement, is easily accessible, and the Agent for the granting of Lands in this district is Mr. T. P. French, who resides at Mount St. Patrick, near Renfrew, on the Opeongo Road, a few miles from the Lands which are to be granted. To reach the section of Country under Mr. French's charge the Settler must go from Montreal up to the Ottawa River to a place called Bonchere Point, and thence by land some twenty-five or thirty miles westward to the Township of Grattan, in which Mount St. Patrick is situated.

THE ADDINGTON ROAD,

Commencing in the Township of Angleasea, in the northern part of the County of Addington near the Village of Flint's Mills, in Kaladar, runs almost due north to the River Madawaska, a distance of 35 miles—and is to be continued thence for the distance of 25 miles till it intersects the Ottawa and Opeongo Road.

The Agent for the granting of the Land in this district is Mr. E. Perry, who, for that purpose, is now resident at the Village of Flint's Mills. The outlines of five townships of very superior land are always surveyed and ready for Settlement within the limits of the Agency, lying north of Lake Massanoka, and between it and the River Madawaska. The Townships are called respectively Abinger, Denbigh, Ashley, Effingham, Anglesea, and Barrie.

The direct route to this section is by way of Kingston, Canada West, thence to Napanee, either by land or steamboat, and thence north to the Township of Kaladar, and the Village of Flint's Mills where Mr. Perry resides.

THE HASTINGS ROAD,

Almost parallel to the Addington Road, and at a distance West from it of abont 32 miles is the Hastings Road. This Road beginning at the northern part of the County of Hastings, and running a distance of 74 miles, almost due north, also intersects the Ottawa and Opeongo Road and its extensions.

The Government Agent is Mr. M. P. Hays, who resides at the Village of Hastings, lately called Madoc, about 28 miles north of the Town of Belleville. The Road between these places is in good order. The land to be granted by the Crown under this Agency extends from 15 to 70 miles north of the Village of Hastings. The Road through this large extent of land is passable for 40 miles, and money is now being expended to extend it 30 miles further, so that Settlers can get in and out without difficulty, and find a good market for surplus produce, as well as convenient facilities for bringing in whatever supplies they may require—abundance of which can be had at the Village of Hastings, where the Government Agent resides.

The direct way to reach this section, which is easily accessible, is by Kingston, Canada West, thence by Steamboat up the Bay of Qninte to Belleville, 56 miles—and thence by a good road to Hastiugs, 28 miles.

In order to facilitate the settlement of the Country, and provide for keeping in repair the roads thus opened, the Government has authorized Free Grants of Land along these Roads, not to exceed in each case One Hundred Acres, upon application to the Local Agents, and upon the following

CONDITIONS:

That the settler be eighteen years of age.

That he takes possession of the Land allotted to him within one month, and put in a state of cultivation at least twelve acres of the land in the course of four years,—build a house (at least 20 by 18 feet) and reside on the lot until the conditions of the settlement are duly performed; after which accomplishment only shall the settler have a right of obtaining a title to the property. Families comprising several settlers entitled to lands, prefering to reside on a single lot, will be exempted from the obligation of building and of residence, (except upon the lot in which they live) provided that the required clearing of the land be made on each lot. The non-accomplishment of these conditions will cause the immediate loss of the assigned lot of land, which will be sold or given to another.

The road having been opened by the Government, the settlers are required to keep it in repair.

The Local Agents, whose names and places of al ode have already been given, will furnish every information to the intending settler.

The Log-house required by the Government to be built, is of such a description as can be put up in four days by five men. The neighbours generally help to build the Log-cabin for newly arrived settlers, without charge, and when this is done the cost of the erection is small; the roof can be covered with bark, and the spaces between the logs plastered with clay, and white-washed. It then becomes a neat dwelling, and warm as a stone-house.

The lands thus opened up and offered for settlement, are, in sections of Canada West, capable both as to Soil and Climate, of producing abundant crops of winter wheat, of excellent quality and full weight, and also crops of every other description of farm produce. grown in the best and longest cultivated districts of that portion of the Province, and fully as good.

There are, of course, in such a large extent of country as that referred to, great varieties in the character and quality of land—some lots being much superio to others; but there is an abundance of the very best land for farming purposes. The Lands in the neighborhood of these three roads will be found to be very similar in quality and character, and covered with every variety of Timber—some with hard wood, and some with heavy pine.

Water for domestic use is every where abundant; and there are, throughout, numerous streams and falls of water, capable of being used for manufacturing purposes.

The heavy timbered land is almost always the best, and of it, the ashes of three acres—well taken care of and covered from wet, will produce a barrel of Potash, worth from £6 to £7 currency. The capital required to manufacture Potash is very small, and the process is very simple and easily understood.

The expense of clearing and enclosing heavily Timbered Lands, valuing the labor of the settler at the highest rate, is about Four Pounds Currency per Acre, which the first wheat crop. if an average one, will nearly repay. The best timber for fencing is to be had in abundance.

A Settler on these lands, possessing a capital of from £25 to £50 according to the number of his family, will soon make himself comfortable, and obtain a rapid return for his investment. The single man able and willing to work, needs little capital, besides his own arm and axe—he can devote a portion of the year to clearing his land, and in the numerous lumbering establishments, he can, at other seasons, obtain a liberal remuneration for his labor.

The climate throughout these districts is essentially

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UNIVERSAL AGRICULTURAL EXHIBITION AT PARIS.

To Napoleon III. must be ascribed the honor of having opened up to agriculture the same advantages of competition as to the other industrial arts in the international exhibitions. It is true that in the Great Exhibition of London in 1851, there was a splendid display of British agricultural implements and machines, which enraptured the most sober-minded observers. But that most important branch of agriculture, the breeding and rearing of cattle, was entirely wanting. The success which attended the International Show held last year, in conjunction with the Great Exhibition of all nations, in Paris, induced the Emperor to offer premiums for similar shows for this year and next. This is, no doubt, a clear-sighted policy, which cannot fail materially to infuse a new life into the comparatively feeble agriculture of France. To watch the influence of these great gatherings in the French metropolis on the husbandry of that people must present many points, both curious and useful. These friendly gatherings from the most advanced nations of Europe, must have a powerful tendency to strengthen the bonds of peace, by promoting the advancement of its principal art.

The principal building erected for the World's Exhibition last year, was used for the Agricultural Show this. The building is intended to be permanent, and besides answering the purpose of annual agricultural and horticultural shows and other objects, the grand Exposition of French art and manufactures, which for a long time has been held in Paris every five years, will find in this ornamental erection every convenience. To the Agricultural Exhibition of this year the French Government offered premiums to the amount of £7000 sterling, besides innumerable medals of gold, silver, and bronze. The following is a tabular statement of the entries :—

Cattle	1302	Poultry	375
Sheep	729	Pigeons, &c	99
Swine	171		
Goats, Rabbits, &c	81	Total Live Stock	2757
Total	2283	Implements	2108
		Produce	4635
		Pisci-Culture (Fish)	51

About forty different classes of cattle were exhibited, all possessing characteristics which were in a great measure due to peculiarity of climate, uses, and management. The Paris Exhibition, having specimens from various countries, afforded a rare opportunity of observing the effects of climate on the breeding and adaptation of the domesticated animals. In the British islands cattle are usually estimated by two standards—their *milking* and their *fattening* qualities. These two qualities divide all their breeds into two classes, the one represented by the Ayrshire, the other by the improved Short-horn. But on the continent of Europe, as well as in some parts of this continent, another quality has to be taken into consideration, viz., their fitness for *labour*.

Subjoined is an abridgement of a portion of an excellently written paper in the last number of the *Scottish Journal of Agriculture* on the late Paris Agricultural Exhibition, by a practical Scotch farmer, whose habit of observation is evidently of a high order. He classifies the animals into two great divisions, viz., the milk-producing and the beef-producing breeds.

The Ayrshires and Alderneys stood first in a pre-eminent degree as milkers, and they were eagerly purchased. Next came the Holland cattle. They are generally heavier than the Ayrshire, from the greater luxuriance of the pastures, and the system of soiling so generally practised in that country. Some of them are perfect in shape as milkers. Next is placed the Swiss breeds, the Kerry, the French, Normand, Flamand and Breton, the Jutland, the Bavarian, the Saxon, and Bohemian cattle. The Normand and Flamand are large animals, adapted to situations where soil and climate are good, and they combine in a high degree size and milking qualities, and would throw a superior cross with the Short-horns for breeding purposes, their flesh being naturally fine. The Kerry, Breton, and Jutland cattle may be classed together, as being all small, having good shapes as milkers, and well adapted to their pastures. No animals in the Exhibition sold so readily as the Bretons; small and beautiful, with a neat head, a full large gazelle eye, amiable countenance, and quiet disposition, they gained the admiration of all. They resemble in many points the Shetlanders. At the Imperial School at Grigon, the Ayrshires yield the largest quantity of milk in proportion to the amount of food consumed, the Swiss cattle come next, and the Bretons next.

For feeding purposes, more especially, the Durhams or improved Short-horns stand unrivalled. They are eagerly sought after by improving agriculturists in all parts of the world, and command the highest prices; and the number shown by Frenchmen at this Exhibition affords a proof how highly they are esteemed in that country. Next to the Durhams are to be placed the improved Herefords, which some of their admirers consider rival even the former in precocity, when treated as liberally. None of the foreign races approach the symmetry of the Durhams; but the Charotaire, which are pure white, possess many of the qualities which distinguish the pure Short-horns, such as quickness of disposition, fineness of bone, delicacy of touch, and beauty of form. Next to them came the Garonnaise, Agenaise, Bazadaise, and Cortois. These may be considered as analogous or congeners of the races represented by the Garonnaise, a favourite breed, common on the plains of the Garonne, where it is held in

very high repute, and is even considered by some to be the origin of the Durhams. The specimens shown at the Paris Exhibition did not support such a theory.

The Scotch Polled Cattle were exceedingly good, and most creditable to North Britain, and they excited general curiosity. In no breed are the effects of a proper attention to the principles of breeding more apparent than in this; for in the same district there may almost be said to be two distinct breeds, so great is the difference between the improved and the original. As quite opposite to the polled cattle, may be mentioned the Hungarian, which are distinguished by horns two or three feet long, extending straight out from each side of the forehead, coarse, leggy, thin-backed, flat-sided animals. They are the same breed which are so much used in the steppes of Russia and in the Crimea as beasts of burden, and, from their peculiar conformation, are well adapted for getting more quickly over the ground than animals of more perfect form.

The West Highlanders were not good; they were out of condition, and they were just casting their hair. The Race de Salers includes the cattle of Aubrac, Limousin, and Auvergne. This breed occupies the place among the French cattle which our West Highlanders do among the English. Reared in a district similar in geological formation to the Scottish Highlands, composed of granite and gneiss mountains, which rise several thousand feet above the level of the sea, they have all the hardiness of the Scotch breed. No race is said to combine in an equal degree hardiness, fitness for labour, with good milking qualities, and an aptitude to fatten when they are well fed. In Auvergne the cows are allowed to go for six months of the year in a half-wild state, pasturing on the hills in summer, and folded at night.

"We would not advise any tampering with our improved British breeds by the introduction of foreign blood. Let our Ayrshires retain their elegance, gracefulness, and excellent milking properties; let our Durhams esteem their majestic gait, precocity, and aptitude to fatten; let our Leicesters and Southdowns retain their perfect symmetry; let our Cheviots and Blackfaced lose not their hardiness. From everything we saw, they cannot be improved by the amalgamation of foreign blood. The experiment would be dangerous. But it must be admitted that the pure breeds are not, under all circumstances of British farming, the most profitable; the crosses are often the most important and valuable. It is well known that in London a cross with the improved Short-horn and a cow from a breed valued for its milking qualities, is preferred by dairymen to a cow of the pure milking breed, because, when it is of no further use for giving milk, it is more easily fattened off, and attains a greater weight than the latter."

The Swiss cattle were in high repute with many English, and a nobleman purchased fourteen of them for his own country. They might, perhaps, improve the milking properties of the breeds of the south of England. A judicious cross between the Ayrshire and Breton might, under some circumstances, be highly advantageous. The Exhibition was rich, and most instructive in crosses; and the high value of Short-horns might be seen in the numerous crosses which bore their characters. Those between that breed and the Cotertine, the Flanande, the Marceau, the Dutch, and the Charolair, were particularly worthy of notice, and show the immense advantages that would accrue to France by the production of more beef, in raising first crosses with a short-horn bull and their best native cows. The crosses between the Normande and Flanande were the largest of any in the Exhibition. The French appear to be trading too much from crosses. The first crosses are good, but to trade from them

is always more or less attended by risk. Ayrshires were largely purchased by foreigners, indicating that the production of milk is of more importance with them than beef.

In Sheep, all the British breeds were well represented. These combine, as far as practicable, the production of meat, with a somewhat coarse but useful kind of wool. The British sheep-rearer looks principally to the production of mutton, the continental to the finer qualities of wool. And it is an established fact among graziers that the production of fine wool is incompatible with early maturity and aptitude to fatten or rapid production of mutton, in the same breed of sheep. The Merino breed, as might be expected, formed an interesting part of the Show, consisting of excellent specimens from France, Austria, and Saxony. Spain, it appears, had no direct representatives. It is astonishing what pains are taken on this continent in their breeding; registers of their pedigrees being kept as strictly, perhaps, as those of Short-horns or Leieesters in Britain; and flocks truly immense are frequently to be met with, belonging to a single owner. An anecdote is related, that a noble duke, of large possessions in the south of Scotland, once told a foreign nobleman the probable number of the sheep which grazed on his hundred hills—"that," answered the foreigner, "is the number of my shepherds."

The show of swine was inferior to what is usually seen at the principal British Exhibitions. The finest animals were either the property of Englishmen, or bred by them and sold to the French. Of the French races there were the Normande, the Craonnais, and the Marceau—all coarse animals, large, bony, thin in the back, flat in the sides, with very long ears. Austria sent animals which appeared to have scarcely emerged from the wild state. In this department British agriculture stands pre-eminently unrivalled.

In produce the exhibition was extensive and instructive; obtained from most of the countries in Europe. The best wheat was a variety called Brodies, in the high district of Haddington, Scotland; it was spring-sown. France made great exertions to have this part of the Exhibition as extensive and interesting as possible. Her colonies sent also some interesting collections of their produce, among which that of Algiers was decidedly the first. Upon the whole, the exhibition must be regarded as highly successful, and cannot fail in producing most extensive and beneficial results.

The Crops.—The Journal of the N. Y. State Agricultural Society thus briefly sums up the condition and prospects of the principal crops of New York:

"From the returns received, it is evident that the crops will scarcely equal the average of a good year. Wheat is very fine in the berry, though injured in many localities by the fly; barley is a very good crop, and a large breadth sown; oats, owing to the dry weather, will, be a dimished yield; rye, crop good; corn, owing to the dry weather, will, in most of the counties in the State, be less than an average; hay, well secured, a fair crop; the dairy products will be much as usual, though, in some counties, the feed has been very close, owing to the dry weather—where corn has been sown broadcast this has been remedied."

Advice to Young Farmers.—Allow me to say, to young farmers especially, let us be studious and inquisitive, as well as laborious; let us be simple and frugal in our habits; and avoid useless expenditures; leave fine dress, and fast horses, and showy dwellings to those who really need such things to recommend them. Let us ever remember that for health and substantial wealth, for rare opportunities, self-improvement, for long life and real independence, farming is the best business in the world.—*Goldwait.*

USE OF FAT IN THE ANIMAL ECONOMY.

The extraordinary abundance of fat in the bodies of animals inhabiting the intensely cold polar regions may be philosophically considered as a surplus stock of fuel, to be burnt for sustaining animal heat and motive power. Without this internal resource for a supply, during periods when no other available supplies of food are procurable from external sources, the animals of the arctic regions would speedily become frozen, remaining like marble statues fixed on the surfaces of the fields of ice and snow.

A most remarkably abundant provision of fatty and oily matter, formed from hydrogen and carbon, is found in the blubber which envelopes the bodies of stored up whales like a thick blanket. The philosophy of this surprising provision of available food and fuel, accumulated in these large fishes, admits of the following explanations. It appears that whales, in ranging from one feeding ground to another, sometimes have to cross broad oceans. Without an extraordinary supply of carbon, provided like a stock of coals in the bunkers of a steamer, for sustaining continuous combustion during a long voyage, the whales might fail in exerting a motive power sufficient to propel their great bodies through the waters of the broad ocean. Whales have been captured from whose bodies more than one hundred barrels of oil have been extracted. As spermaceti and cetine contain above 90 per cent of carbon and hydrogen, one of these fishes, therefore, carries with him about ten tons of combustible fuel, which is ready at all times to become absorbed and burnt, whenever this leviathan of the deep desires to develop powerful impulses of motive power, and rises to the surface of the ocean, to draw in a long breath of air, containing the requisite quantity of oxygen to burn this supply of carbon, and to allow it to recoil to its natural static condition of carbonic acid gas. The more a whale exerts his locomotive powers, the oftener it is necessary for him to breathe, or "blow," as the whalers term it.

Amid abundant granaries and well-stored market houses where there is little danger of falling short of a due supply of daily food, it is manifest that in the economy of nature there is no real necessity for this extraordinary supply of a surplus stock of carbonaceous fuel, enveloping the ribs of human beings.

The hump on the back of the camel—the locomotive engine of the wild deserts of Asia and Africa—may be deemed by the superficial observer as a deformity, or as a sort of natural saddle, ready prepared to bear the impositions of loads of merchandise, and as thus stamping this animal as a "beast of burthen," apparently by the original design of the Creator. But this uncouth appendage, so far from being designed expressely for the purpose of a saddle, does really subserve the more essential purpose of a knapsack of provisions, to supply from this superabundent deposit of fat, which principally composes this hump, the carbon necessary for propelling the locomotive mechanism of his body across wide wastes of sand, where no blade of grass is found to replenish his exhausted supplies of carbonaceous food. A surplus supply of water is similarly provided in the extraordinary sacs of his stomach, as a substitute for the tank appended to an artificial locomotive engine.

Adventurous mariners navigate their barks among the icebergs of the polar regions, to procure the valuable stores of fat organised into the bodies of the whale, of the seal, and walrus, which they transport to marts of commerce for distribution, for the purpose of being burned as fuel in the lamps, instead of in the lungs, the purpose for which it was originally designed. Men strip off the fur and down from the bodies of animals, whose breasts, exposed by submersion into icy water, and to keen wintry winds, require these non-conducting coverings, to sustain the animal heat generated by combustion in their bodies. These prized spoils of soft downs and furs are appropriated as a covering to

sustain the same genial excitation within the glowing bosom of a civilized belle. In the colder bosom of an Esquimaux belle, residing in a crystal palace, and beneath a dome built of blocks of ice, not only are these soft external appliances of robes of fur necessary for sustaining a genial glow of life's warm current, and also the most extraordinary combustion of fatty and oily matter in her lungs. One of these belles, according to Capt. Parry's narrative of his voyage to the arctic regions, sipped the oil from an extinguished lamp, and received a tallow candle as an acceptable bon-bon, the courteous captain kindly warning her by signs, not to choke herself by attempting to swallow the wick. It thus appears that the quantity of organic carbon which is scarcely adequate to serve as fuel in developing warmth and locomotive power in the bodies of human beings dwelling in the arctic regions would overheat the bodies of the same individuals in warm tropical climates, and would speedily induce fatal inflamatory disorders.

To the ignorance of this simple fact may be ascribed the deaths of myriads of voyagers from cold to warm climates. On the contrary, voyagers from sultry to cold climates, require the combustion of more carbon in their lungs to sustain the average temperature of blood heat. Indeed, the sensation of declining warmth is so immediately attendant on a diminished supply of food that the terms cold and hunger have became associated together, and the phrase starving with cold has lately been introduced into popular language in these countries.

Numerous facts tend to demonstrate that a vigorous and healthful condition of the animal mechanism can only be sustained by a due relative apportionment of the atoms of carbon and hydrogen, presented in the thin membranous air vessels of the lungs to the contact and union with due relative apportionment of the atoms of oxygen inhaled at every breath, and by the appliances of non-conducting clothing, to prevent the too rapid propagation of heat from the body. And thus the mechanical motive power of the vital agency of "life" truly subsists by the combustion of carbon, in accordance with the emblematical flame of the lamp, which was once lighted in every tomb by a classic and superstitious people, as allegorically representing the bright spirit which, for a brief time, animates the body and then vanishes for ever like the quivering and expiring flame.

Ripe Tomato Pickles.—Select handsome sized tomatoes, wash them and prick them with a fork; lay them in dry salt twenty-four hours; then soak in equal quantities of vinegar and water for 24 hours; then take them out and lay them down in a crock, with with sliced onions, with cinamon, cloves and brown sugar, and then cover the whole with good cider vinegar.

How Coffee came to be Used.—It is somewhat singular to trace the manner in which arose the use of the common beverage of coffee, without which few persons, in any half or wholly civilized country in the world, now make a breakfast. At the time Columbus discovered America, it had never been known or used. It only grew in Arabia and Upper Ethiopia. The discovery of its use as a beverage is ascribed to the superior of a monastery, in Arabia, who, desirous of preventing the monks from sleeping at their nocturnal services, made them drink the infusion of coffee upon the report of the shepherds, who observed that their flocks were more lively after browsing on the fruit of that plant.—Its reputation spread through the adjacent countries, and in about 200 years it had reached Paris. A single plant brought there in 1714, became the parent stock of all the French coffee plantations in the West Indies. The Dutch introduced it into Java and the East Indies, and the French and Spanish all over South America and the West Indies.

The extent of the consumption can now hardly be realized. The United States alone annually consume it at the cost on its landing of from fifteen to sixteen millions of dollars. That of tea is a little over eight millions of dollars. You may know the Arabian or Mocha, the best coffee by its small bean of a dark yellow color. The Java and East Indian, next in quality, are larger and of a paler yellow. The West Indian and Rio have a bluish or greenish-gray tint.

THE VITALITY OF SEEDS.

THE WHITE DAISY, CANADA THISTLE, ET ID OMNE GENUS

An intelligent correspondent of the Rural *New Yorker* makes the following observations on the above subject:—

Mr. D. Daniels, under the head of "How to kill the White Daisy," in the *Rural* of August 9, gives, doubtless an effectual remedy for the time being. But there are some facts in regard to the vitality of seeds,—of which, perhaps, he is not aware. The white ox-eye daisy, the common May weed, the little white daisy, the sorrel, and many other plants usually bear an immense quantity of perfect seed, and as nothing that I know of eats them, and they have no egret or wings to carry them off, they drop on the ground where they grow, but frequently not a vestige of the plant will be seen there the next year.

The fact is getting to be pretty well understood that many of the smaller seeds, which are encased in a hard shell, remain in the ground many, probably, often hundreds of years, without losing their vitality. Many instances have been cited in your paper, proving this, but I will cite one more. A neighbor of mine plowed a lowish piece of grass ground, and put in a spring crop. He was surprised to find one part of it covered with mustard and the other with turnips, having never seen either there before. On inquiry, he found that twenty years before one part was sown with spring wheat in which there was mustard seed and the other with turnips; very few of the latter of which came up.

Many seed, in order to vegetate, require some peculiar condition of the soil. For example, the button-wood tree requires its seed to be planted in deep subsoil, and will never vegetate in a common ploughed field. Consequently we see it mostly along the banks of streams, where trees have been torn up, and particularly along common highways, railroads, and canals. The common May-weed requires that the surface of the ground should be stirred as soon as it is thawed in the spring, and while it is frozen under. Thus we see it along the sides of our roads, where teams have turned aside to keep on the snow, and in the corners of fields where pigs or sheep have trod, at that particular season, and seldom anywhere else. Were it not for this fact the weed would be a great nuisance. The fireweed, as we most know, requires that the surface should be recently burnt over. The wood sorrel has doubtless spread its seeds over most of our cultivated lands. It requires more acid in its food than any of our field crops. Consequently you will see it flourish where plaster has been too frequently sown, and thus an excess of acid left in the soil, and particularly where swamp muck has been piled on dry ground to decompose and disengage its icid. This plant disappears before lime-ashes and other alkalies that neutralize the acid.

Most of our cultivated crops, including many noxions weeds, require a condition more or less general, but there are more plants than those above cited, that have their idiosyncracies. The ox-eye daisy is peculiar to worn out grass lands, and always soon disappears before high cultivation, and if the seeds have once been allowed to ripen and fall. I assure Mr. Daniels that he will never live long enough to see them exterminated from the soil, if he allows his land to run down and lie to grass. I do not make these remarks to discredit his recipe; it will doubtless kill all the roots, and, especially if he manures the ground, prevent for the present the vegetation of the weeds in the ground.

The difficulty in eradicating most of our noxious weeds, is that they require for their full development the same conditions of the soil as our cultivated plants. This is peculiarly true of the Canada thistle, while at the same time it has all the means known to plants for its propagation and extension; being parenial, produced by cuttings of the roots, the seeds have wings, live in the ground forever, and are eaten and spread by birds. It is a very hardy and tenacious plant, is a pugnacious enemy to human flesh, and on the whole, notwithstanding the apathy produced by its omnipresence, decidedly worse than all other noxious weeds we have, and cannot, during the present century, be exterminated generally, unless by the help of an unknown enemy to the plant, or by disease. It is only by a constant warfare that we can keep it under subjection, for while we subdue it in one place it is springing up in another.

H.

The same iron ore furnishes the sword, the plowshare, the pruning-hook, the needle, the graving tool, the spring of a watch, the chisel, the chain, the anchor, the compass, and the cannon-ball.

THE PLANTAIN.

Of all the vegetable productions of the tropics, none has obtained such celebrity, at least in the temperate regions, and of none have such marvelous stories been told, apparently upon very trustworthy authority, as of the plantain; and by reducing these marvelous stories to the standard of truth and fact, we shall enable all the proposed emigrants to judge of the probability of eating in the tropics without being obliged to work. The delusive statement so often repeated, as to the productiveness of the plantain seem to have originated with the illustrious Humbolt, who, as to this matter, suffered himself to be egregiously misled; but they owe their propagation and currency chiefly to the efforts of the British West Indian planters, who hoped to stave off the abolition of Slavery, by arguing—citing Humbolt to prove it—that one day's labour in a week, or even in a month, devoted to the cultivation of the plantain, would suffice to keep a family in food, so that, in addition to hunger, the stimulus of the lash would be needed to make the negroes work.

The plantain (*musa* of the botanists,) though often called a tree, is an annual plant sending up shoots from a mass of roots, or *stool* as it is technically called, which shoots attain a hight of from ten to twenty feet, giving off toward the top drooping leaves nearly two feet broad and ten feet long, of a delicate texture and beautiful light-green color. From the top proceeds a long spike, which bends over and droops toward the ground with the weight of the fruit it produces. This fruit, in size and shape someting like a good-sized cucumber, grows together in clusters of five or six, called *hands*, and arranged in succession along and around the spike. As soon as the fruit is matured the plant dies to make way for new shoots which spring up from the stool. There are two principal species, each with many varieties, cultivated in tropical America, one called by the English the *plantain*, the other the *banana*. The French, on the other hand, call the plantain the banana, and the banana the fig, and this confusion of names has given occasion to a confussion of ideas, from which Humbolt himself has not entirely escaped. The banana or fig is eaten only in a ripe state, commonly raw, and is no more a regular article of food than apples or pears are with us. The plantain is chiefly used as food after it has attained its full size, but before the starch, of which it is then chiefly composed, begins, by the process of ripening to be changed into sugar. In this unripe state it is eaten roasted and boiled, and is a nutritious and palatable food. Sometimes the boiled plantains are pounded into a tenacious mush—called *foo-foo* in the English colonies—and this, with a little soup or sauce to moisten it, is the favorite diet of the Creole women and children. Sometimes the plantain is cut into stripes and dried in the sun, after which it is pounded into flour, from which various messes are made. So much for the article itself, and now for its productiveness. Humbolt represents the produce of the plantain to the acre compared with potatoes as 1,060 to 24, which is 44 times as great; and compared with wheat it is 1,060 to 5, or 133 times as great; and, according to him, one acre of plantains will feed a family of 40 persons the year round. He makes it out in this way: He proposes to allow to each plaintain tree a space of 30 square feet, or about 1,500 to the acre, and to gather from each stool four bunches a year, and reckoning the bunches to weigh from 66 to 88 pounds each, he calculates on a crop of 175,000 pounds of nutriment annually.

The facts—as ascertained by several years careful observation in a country where plantains were largely cultivated, and with a soil and climate particularly favourable to their growth—are these:—Only three hundred stools are planted to an acre, and one bunch a year is as much as can be expected from a stool. The average weight of a bunch is thirty-five pounds. This gives 10,500 pounds weight of plantains, from which a fourth must be deducted for the weight of the stems and of the thick skin with which each plantain is covered. That would leave a little less than 8,000 pounds of nutritious matter. An acre of potatoes, at 300 bushels to the acre, will produce 18,000 pounds. The plantains, however, contain less water, and are more nutritious, weight for weight, than the potatoes. The weekly allowance under the English West-Indian Apprenticeship system was two bunches or seventy pounds of plantains to adults and half as much to children seven years and upward. This was said te be an ample allowance. At this rate an acre would feed three grown people.

To Keep Foxes from Killing Lambs.—A number of years since a neighbor told me that I if would put sulphur on the fence around a lot, foxes would not enter it. I thought perhaps that putting it on to the lamb as soon as found might be better, which I have practiced since, and have not lost a lamb by them, to my knowledge. Yet an old female might not fear sulphur any more that an old sinner does brimstone.

GOVERNMENT EXPERIMENTS WITH BOYDELL'S TRACTION-ENGINE.

An important series of experiments were commenced on Tuesday last by the Select Committee of the Board of Ordnance with the engine, to test its traction force as a substitute for artillery horses; and the results, so far as gone, greatly exceed our expectations —sanguine as they have ever been. The experiments of the 14th instant are two in number, and as follows:—

First. The engine, with a sufficiency of water for a good long yoking, weighing 9 tons, hauled a heavy seige gun (5 tons 12 cwt.), carriage and tender (2 tons 7 cwt.), and 16 men (say 1 ton and 2 cwt.); making a total of 18 tons including the engine itself, from the Arsenal up Barrage-road to Pulmstead Common, and down the steep incline to Waterman's-fields in return! The stepest part of the ascent is 1 in 10, and of the decent 1 in 8 or thereby, both inclinations having to be remeasured. Of the two, descending was considered by all present the master-part of this experiment, no break or drag being upon any of the wheels; those of the gun-carriage and tender (9 tons) being without endless rails; for in the very steepest part of the inclination our modern megatherium war-horse had as much control over his ponderous load as is to be seen in the parallel case of the steam-hammer, standing rock-fast, like a statute, the instant the order, "Stop her!" was given—a feat which even few of the admirers of this new-fangled inovation expected to see performed in so triumphant a manner. Moreover, in going up Barrage-road the wheels of the gun-carriage sunk from 1 to 3 inches in the shingle, of which the road was made—a circumstance which greatly added to the draught; nevertheless the war-horse dauntlessly took the ascent with that dignity of bearing and self-confidence which characterises the genius of steam when master of its work, and would soon have enabled the men to have planted the huge gun on the top of Shuter's-hill, had not Colonel Tullock ordered him down the steep descent to try his mettle there.

The second experiment was in hauling a gun of the same size over a marshy bog in the lower part of the Arsenal ground, a bog too soft to bear the feet of horses when pulling, or even when standing. The wheels of the gun-carriage in this case were furnished with rails, and the engine was yoked to the gun by means of a rope, capable (it was said) of sustaining a train of ten tons. This rope was broke by fair pulling several times, owing to abrupt inequalities in the ground which the wheels were run against, and not the best of engineering; but these eventually were both overcome, 2,040lbs. pressure of steam on both pistons, or 60lbs. to the square inch, dragging 18 tons triumphantly over the quag-mire!—a result which all the artillery-horses in her Majesty's service could not have effected.

Such are the two first experiments made by Mr. Boydell before the Select Committee of the Board of Ordnance. That they solve the proposition of farm-cartage, as well as that of artillery-traction, will readily be admitted by all who comprehend the simple elements of mechanical science; hence their importance at the present moment to her Majesty's Government, to the Royal Agricultural Society, the readers of the *Mark Lane Express*, and the public generally.

In these concluding observations we are only directing our reader's attention to first principles involved, and not to the details of mechanism; which, though greatly improved since the Willesden experiments, are still very defective; but the Woolwich experiments, with all these defects against them, place the propositions of the endless railway, their applicability to the wheels of portable engines for self-locomotion, and the application of the motor force to or gearing of the crank-shaft pinion in the top of the 96-toothed wheel, beyond the cavil of prejudice, and the book-rules of engineers, who have never crossed *pons assinorum*. With regard to the defects just alluded to, it is but justice to the firm of Boydell and Glasier to say, that they are being removed as fast as discovered. Rome was not built in one day; and therefore the inventor of the "endless railway" is justly entitled to the usual allowance of time to carry out his invention for the various uses to which it is adapted. This accorded to all great projects of so novel and comprehensive a kind as it is; and why should such be denied to him? The hasty conclusions at which unmechanical minds, so to speak, have arrived at, we can readily excuse; but no one can excuse himself who shuts his eyes to the experiments we have just brought before our readers.—*Mark Lane Express.* W. B.

To Make Tomato Wine.—Take small, ripe tomatoes, pick of the stems, put them into a basket or tub, wash clean, then mash well, and strain through a linen rag, (a bushel will make five gallons pure,) then add two and a half to three pounds of good brown sugar to each gallon; then put into a cask, and ferment and fine as for rasberry wine. If two gallons of water be added to each bushel of tomatoes, the wine will be as good.

FERTILIZERS FOR FRUIT TREES.

In relation to appropriate fertilizers for trees a diversity of opinion prevails. All agree that certain substances exist in plants and trees, and that these must be contained in the soil to produce growth, elaboration and perfection. To supply these, some advocate the use of what are termed "special manures," others ridicule the idea. I would suggest whether this is not a difference in language, rather than in principle; for in special fertilizers, the first make simply those which correspond with the constituents of the crop; but are not the second careful to select and apply manures which contain those elements? and do they not, in practice, affix the seal of their approbation to the theory which they oppose? Explode this doctrine, and do you not destroy the principle of manuring and the necessity of a rotation of crops? Trees exhaust the soil of certain ingredients, and, like animals, must have their appropriate food. All know how difficult it is to make a fruit tree flourish on the spot from which an old tree of the same species has been removed.

The great practical question now agitating the community is, how shall we ascertain what fertilizing elements are appropiate to a particular species of vegetation? To this two replies are rendered. Some say, analyze the crop; others, the soil. Each, I think, maintains a truth; and both together, nearly the whole truth. We need the analysis of the crop to teach us its ingredients, and that of the soil to ascertain whether it contains those ingredients; and if it does not, what fertilizer must be applied to supply them. Thus, by analysis, we learn that nearly a quarter part of the constituents of the pear, the grape, and the strawberry consists of potash. This abounds in new soils, and peculiarly adapts them to the production of these fruits, but having been extracted from soils long under cultivation, it is supplied by wood ashes or potash, the value of which has of late greatly increased in the estimation of cultivators.

Among the arts of modern cultivation, universal experience attests to the great advantage of "mulching" the soil around fruit trees, as a means of fertilisation and of preservation from drouth and heat, so common with us in mid-summer. In illustration of this, experiment has proved that on dry soils, where the earth has been strewn with straw, the crops have been as large without manure as with it, where evaporation has disengaged the fertilizing elements of the soil.—Marshall P. Wilder, *in Patent Office Report.*

The Wrappings of the Mummies.—A newspaper came to us yesterday from Syracuse, New York, made from rags imported directly from Egypt, and which had once wrapped within their folds the mummified remains of the descendants of Mizraim. They were imported by Mr. G. W. Ryan, paper manufacturer at Marcellus Falls, and he thinks them quite as good as the general run of English rags. The paper is certainly of very good quality; rather superior to that generally used in this country for newspaper purposes. What it costs, the publisher does not say, but as there are thousands of bodies in Egypt, wrapped up in linen folds, it is quite probable that the rags are cheaply imported as those from any other country.—*Philadelphia Sun.*

Save Seeds of Perfect Fruit.—During the present month many kinds of vegetables will be ripening. Those who wish to perpetuate an early and fine variety, should select the first that ripens which is perfect, and save it for seed. Save such as are the least likely to be impregnated with an inferior sort by the action of bees or other insects. Proper care in this will insure an early supply of vegetables of a superior quality. Seeds when saved, should be kept in a cool dry place, properly labelled as to sorts.—*Mich. Fair.*

Steam Plowing.—J. Percy, of Albany, has constructed a carriage, to which ploughs may be attatched, and which he feels confident will enable him, by steam power, to overcome the difficulties which have heretofore prevented the practical working of steam for this purpose. His plan seems feasible, but trial alone will demonstrate whether it can, successfully and cheaply, be applied to practical use on the farm.—*Journal N. Y. Ag. Society.*

The state of agriculture in all countries depends as much on climate and on quality of soil as on the industry of the inhabitants. From the immense extent of the Russian empire, an extreme diversity of climate exists, which necessarily causes a great difference in agricultural processes. According to M. Meyendorff, the culture of wheat stops at the 58th degree of latitude; of oats, at the 63rd; of rye, at the 65th; and of barley, at the 67th degree. The birch does not flourish beyond the 69th; the pine and the larch beyond the 68th; the fir is arrested at the 67th; and the alder at the 63rd degree.

SUCCESSFUL CULTURE OF THE RASPBERRY.

We copy the following interesting account of a successful experiment in the culture of the raspberry, as illustrating the advantages of good treatment, and especially of mulching, and also showing that the same care which produces a heavy crop of good corn, will also give a fine crop of delicious fruit:

Happening to go into the market stand of Messrs. Hawley, Smith & Carman the other morning, we were so much pleased with a lot of Antwerp Raspberries, and of what we heard of the plot they came from, that we struck a "bee line" for South Norwalk, Conn., to hunt up the grower, Mr. Samuel Seymour, a young farmer some twenty-two or twenty-three years old, and who is yet upon the old homestead. (We mention this fact for the benefit of other young men.)

We found the 'raspberry patch' to consist of just 100 square rods, (not 100 rods square,) or five-eighths of an acre. The ground was uniformly covered with plants all just up to our eyes, (we stand five feet ten in low heeled boots, and we could not find a fruitless hill upon the whole. As a matter of information to the novice in raspberry growing, and its profits, we proceed to give the history of this plot.

The soil was a very stony one on a side hill. Without estimating the countless loads of stone removed in time past, one hundred cart loads were taken off it to prepare it for the raspberries. This was in the fall of 1852. Twelve cart loads of manure were then worked into the surface. The manure consisted of barn-yard manure composted or rotted with swamp muck.

November, 1852, the plants were set out, four in the hill, and the hills four feet apart each way. The canes or stalks when transplanted, were about three feet in height. They were immediately bent down and covered one to two inches of soil. In the spring they were uncovered "just before the peach trees were in full blossom." The canes were then raised up and tied to small stakes set in the centre of each hill. They were afterwards cultivated "just like corn," the cultivator and hoe being used to keep the weeds down, and the ground loose and level. The plot yielding 440 pint baskets of fruit the first season, (1853) When the bearing season was over the old canes were cut off close to the ground, and the stakes taken up. In the fall, before the ground froze, the young plants were bent down and covered.

In the Spring of 1854 the same course was pursued, as during the previous year. The season was a bad one and only 226 baskets were picked for market. In the fall, cutting down old wood and covering the young plants, were again resorted to.

In the Spring of last year, (1855) in addittion to the previous cultivation, a coating or mulching of three loads of salt hay was spread over the surface. This kept down weeds and saved nearly all the trouble of hoeing, and kept the ground moist, besides preventing any soiling of the fruit during rain. The crop for 1855 amounted to 5,026 pint baskets, which sold for $360. Considerable quantities were also consumed at home, and distributed among friends. The same seasen young plants were sold amounting to $176.50. The 100 square rods thus produced in 1855 $536.50, or at the rate of $858.40 per acre. The entire expenses of culture, picking, marketing, interest of land and capital invested, &c., $411,50, or $658.40 per acre.

Last fall the usual cutting and covering were again pursued. The mulching was aided in at the time of burying, and formed part of the covering.

In the Spring of this year (1856) the ground received a new mulch of salt hay, and to this date very few weeds have grown through it. Straw, bog hay, saw dust, spent tan, &c., will answer as well as the salt hay, which was used in this case because more conveniently procured. We cannot estimate the amount of the crop the present season, as the gathering is still going on. To this date (July 24) 4,600 baskets have been sold. The plants are now suffering for the want of rain. Since the old plants are cut down every year, and new ones take their places, there is no reason why such a plot should not continue in good bearing for any length of time. The picking is done by boys at one cent a quart, at which price they make from 40 to 62½ cents per day.

As stated above, these are the *pure* Antwerp variety. The fruit is not quite so large and "juicy" as the Fastolf, but it is much firmer, and thus bears marketing better where they are to be carried far. For *home* use we give the preference to the Fostolf. Mr. Seymour sends them to market in pint baskets and quart boxes. We have seen tin cans used the present season, but the berries do not keep as well in these as in open baskets. Berries in baskets sell a little higher and more readily than when in wooden boxes.—*Am. Agriculturist.*

RULES FOR PLOUGHING MATCHES.

To the Editor of the Agriculturist.

Thorah, 8th August, 1856.

Dear Sir,—Some young men in this Township, who are anxious to have a ploughing match on my farm, have applied to me for the rules of competition usually adopted—observing that you take an interest in such matters, I take the liberty of requesting the favor of your assistance in stating them in such way as may be a guide in future competitions—impressed with a conviction that such trials of skill are conducive to improvement in agriculture, I feel anxious to promote their views, and will feel much obliged if time permits, by hearing from you.

I remain, Dear Sir,
Your obedient servant,
Kenneth Cameron.

I have got a Bingham plough which is of decidedly lighter draught than any other that I have seen work, but have no means of ascertaining how many degress.

K. C.

Millbank Farm, Yonge Street, August 18, 1856.

Dear Sir,—Your note, asking for the rules of competition usually adopted at ploughing matches, was received during my temporary absence, or it would have had an earlier reply.

I am not aware that there are any well defined and generally recognized rules, applicable to these matches as ordinarily conducted. Where the object is to test the skill of the ploughmen—implements being left out of question, except so far as their merits may be inferred from the work done—the standard of excellence is simply the arbitrary opinion of the three or five persons who may be appointed to award the prizes. There are some conditions, however, generally deemed essential. 1st. A straight furrow slice. 2nd. Uniformity of width, and of depth. 3rd. As a result of the foregoing, a complete parallelism of all the furrow-slices. 4th. The slices compacted so as to hide, or cover grass &c. 5th. A similiar form of crest and equal exposure of surface. 6th. The crown or the ridge neither too much elevated nor depressed. 7th. The open furrow neatly ploughed out, the last furrow-slices being laid at the same angle as the rest.

The above may be termed general conditions, or criteria of good ploughing, whatever be the *size* of the furrow-slices, or the *cut* or form that may be adopted. The latter points having been agreed upon by the judges, and made known to the competitors, he who fulfils in the highest degree the above conditions, should be pronounced the best ploughman. The ridges or lands are usually marked out and numbered, and assigned to the ploughmen by lot. The judges are sometimes chosen by the ploughmen, which is perhaps the most satisfactory mode.

Other points will readily occur to your mind—as indeed will those I have suggested. One reason, I presume why our Agricultural Societies, Clubs &c., have never agreed on specific rules for ploughing matches, is the great diversity of ploughs—no single kind or form, being adapted to all soils, or universally approved or used. The Scotch Iron Plough is perhaps the most popular with good ploughmen, and is generally used at ploughing matches in this part of the country. Those I have noticed are all of the Wilkie or Lanarkshire pattern, which make the high-crested furrow-slice, so much admired by Scotch ploughmen of the old school. Mr. Stephens, I think, has conclusively shown (see his *Farmer's Guide* (Am. Ed.) vol. 1, page 161) that this form of furrow is defective, and the popular notion that it gives more soil to cover seed than the rectangular furrow, is an error. Moreover, it gives a shallower seed-bed, for it leaves a portion of each slice attached to the subsoil. The

point is an interesting one, and lest you should not have Mr. Stephen's work at hand, I will publish his remarks upon it in the next issue of the *Agriculturist.*

You will find in the number for June the Report of a trial to test the draught of several ploughs, including that of Mr. Bingham. The figures are sufficiently accurate for all practical purposes, and merely *prove* what before was evident to any intelligent ploughman, or mechanic viz., that a plough, the mould-board and land-side of which presents a very acute angle—a sharp wedge to the resisting soil, will require less power to move it than one presenting a more obtuse angle,—a blunter wedge to the same resistance. But in the attempt to avoid heavy draught a more serious defect is apt to be encountered. The mould-board will not sufficiently *press* the furrow-slice together to prevent grass and weeds from springing up. Let me observe, however, that a plough which will suit equally well all soils and circumstances is a desideratum not likely to be obtained. As many as three of different size and shape can be used to advantage on almost every farm. Including the Michigan Double, or subsoil plough, I use four, the last being, in my opinion, the most valuable.

Hoping that your efforts to improve the agriculture of your township may move abundant success, I am Sir, with much respect,

Yours &c.,

Colonel Kenneth Cameron, Thorah. WM. McDOUGALL.

[Finding that it would be necessary to copy two or three cuts which Mr. Stephenson uses to illustrate his views, we have been obliged to defer copying the extract above alluded to till next month.—ED.]

ANOTHER HEDGE PLANT.

To the Editor of the Agriculturist.

Westwood, July 31, 1856.

SIR,—Of all the trees and shrubs hitherto proposed as a substitute for timber fences in Canada, there have been none as yet submitted, to which some grave suggestions do not belong, and the addition I have to make to the catalogue will probably only add to the list. The subject, however, is worth being kept before the farming public until some worthy substitute has been arrived at, were it only for the sake of appearance, nothing being more ugly or disfiguring than the (hitherto necessary) wooden fences of the country.

It is clearly an indispensable qualification for a live fence plant for Canada at present, that it should take care of itself, and answer the purpose for which it is intended without further expense or labour than may be comprised in a year or two's hoeing, during its infancy. As a plant uniting these qualifications, I beg leave to recommend the Sweet Briar to your favourable notice.

The plant is so well known that any description would be absurd. I may, however, give as a reason for believing it would answer the end in view, that I have remarked it growing in commons and waste places for the last 15 or 20 years, that at 10 years of age it forms a bush six feet high, as thick as a fagot, and one foot in diameter at bottom, spreading to 4 feet at the top (even under these disadvantages); that nothing certainly could get through; and strong enough apparently to resist the heaviest cattle. Should it, however, be found wanting on this point (the only one to which it might be liable), the want might be effectually supplied by crotchets driven in till about three feet from the ground, and poles laid on them, after the fashion of the ox-fence in England.

As the bush sends up fresh suckers every year from the root to the height of 6 or 7 feet, which, though ceasing to grow any higher, interlace each other, no pruning would be required, whilst from its mode of growth each year can but add to its strength and compactness, the same reason would also seem to argue that, if not immortal, it is very long lived. At any rate I have no doubt it would last until sufficient time and means were at the disposal of the inhabitants of the country to pay sufficient attention to the larger-growing live fence plants.

I remain, Sir, your ob't serv't,

JOHN H. JONES.

REMARKS.—By the expression "one foot in diameter at bottom" Mr. Jones must mean the space occupied by all the canes or shoots from one root. The diameter of the largest sweet-briar cane we ever remember to have seen, does not exceed one inch. This bush grows near the window at which we write, and on the site of an old chip-yard. It has often occurred to us that it would make an excellent *thickener* for a hedge of larger plants, but we doubt that it could of itself, be made of sufficient strength to resist unruly cattle, especialiy those trained to hunt among briars, &c., for their daily food, as is the case with a large proportion of the cattle of this country.

Judging from the size the sweet-briar attains in fence corners and near stumps or roots, we should suppose it would require a rich soil, and considerable cultivation to become formidable.

QUICKSAND—ANOTHER REMEDY.

To the Editor of the Agriculturist.

SIR,—I seldom write for a public paper, but being a reader and subscriber of the *Agriculturist*, I take the liberty of addressing a few lines to you, as I observe in your excellent paper for the present month, one of your correspondents has had much trouble with quicksand in his well. He thinks there must be some means of preventing the sand washing through the bricks or stone, and I believe there is. An acquaintance of mine has had a good deal of experience with wells for several years, and he states, that to get a good supply of moss from a swamp, and by sinking a wooden curb as deep as it can be, and as soon as he begins to build with brick or stone fill up the cavities behind with moss, and it will prevent the sand coming through. The same individual fixed a well, I think same time last year, in the manner I have described, for Jas. Monkman, Esq., of this township, which answers a very good purpose.

You can make what use of this communication you may think proper. Wishing you prosperity in your undertaking, I am, &c., respectfully,

Albion, Aug. 18th, 1856. WM. ROADHOUSE.

TO PREVENT BUCKS FROM FIGHTING.—A correspondent of *Country Gentleman* says:—Formerly I annually lost several valuable bucks by fighting; some killed immediately by their necks being broken, and others would become fly-blown, or poisoned by rubbing against stumps which were overgrown with poison vines, and to prevent a lingering death I was compelled to examine them often and use quite an amount of oil of spike and turpentine. I now cut pieces of harness leather, and cut two holes in the upper side of each piece, and tie to each horn, which will effectually prevent them from fighting; for they cannot see each other in front but can only see each other when by their side. The expense is trifling, and will save the lives of many animals, and allow the owner to rest contented that his bucks will not harm each other. I feel induced to make this known, not only to lend a hand in the hour of trouble, but to serve as an answer to the many letters of inquiry, written to me in regard to the above trouble.

LENGTH OF RAILS—ENQUIRY.

To the Editor of the Agriculturist.

Sir,—In looking over the July number of your paper I find a communication on fences, in which the writer expresses his surprise that the western part of the country is so deficient in fences; and then goes on to describe a kind of fence in vogue in Renfrew and Lanark, which he says is the best and cheapest. He goes on to say, that it is made of a ground block, and pickets and rails. He informs us that it will only take 138 rails to the acre. Now I would wish to remark that it is very desirable you should procure more information from Mr. Robertson as to what length of rail he uses. According to my calculation and allowing the rails to be 11 feet long, which is the length generally in use here, it would take about 450 rails to fence a square acre, and so in proportion for a larger field.

I am, yours truly,

J. J. G.

Biddulph, July 30th, 1856.

Remarks.—Mr. Robertson probably meant one side of a square acre, or the 10th part of the fence required to enclose a ten-acre field. If the latter, and we assume it to be of the usual shape, viz., 40 rods by 20 rods, then "one acre," or 1-10th of the enclosing fence would be 12 rods or 198 feet. This would take about 18 panels or lengths of 11 ft., and 6 rails to the panel, would give 108 rails. 6 long rails or riders would be required according to Mr. R.'s plan, making in all 114. This is less, by 24 rails, than the number stated in Mr. R.'s communication. Perhaps he allowed the 24 rails for pickets—but we leave the matter for Mr. Robertson to explain. It is desirable in such calculations to state explicitly all the elements of the question, so that the reader may not be left in doubt.

APPLE TREES AND INSECTS—ENQUIRY.

To the Editor of the Agriculturist.

County of Grey, August 27th, 1856.

Sir,—Being a reader of the *Agriculturist* nearly since its existence, I have been much pleased with the information I have derived from its pages, about things in general. However, I would wish to get a little more about Horticulture than I have lately received. Having a small orchard and nursery of apple and other trees, some newly grafted, others more advanced, and others as far as fruit-bearing; the whole of the trees are pretty well taken care of, being hoed now and then to keep down weeds; but the trees do not flourish, for under the leaves and the most of this years' wood, the greater part of the apple trees are covered with small green insects about the size of clover seed, and have been so during the most of the summer. Now the insects are beginning to die, and the leaves and branches look very black, and the top of some of the trees are dying. Numbers of ants are very busy running to and fro amongst the branches. Now, Mr. Editor, if you or any of our Horticulturists know what caused the above-mentioned insects, or what will destroy them, or both, I would feel very happy to be informed of the same, through your valuable paper.

I am, yours, &c.,

A Subscriber.

Influence of Soil on Timber.—It is quite certain that the nature of the soil exerts a considerable influence on the rapidity of growth and quality of timber. The oak, the walnut, the poplar, &c., which have been grown on a damp soil, will not be so hard and compact as the same trees reared on a dry plat. Their white or sap wood is thicker in comparison with their hard wood; and their pores being larger, and open, and the whole wood being without that kind of varnish which impregnates good timber, they are readily permeable, and unfit for the manufacture of vats, &c., to say nothing of their being much more perishable.

THE "WEEVIL"—LIGHT WANTED.

To the Editor of the Agriculturist.

Westminster, Aug. 8, 1856.

Dear Sir,—Can you give a young beginner any light respecting the sowing of wheat, seeing that the "weevil" has paid a visit this season to our wheat crops in Middlesex. From what I have seen in other places, it is utterly useless so sow the wheat they have once attacked, so long as the "weevil" remains around. My object in troubling you is to try and find out if there is any kind the "weevil" will not attack, and where it can be procured, and at what price. If none, what other crops would you suggest as paying crops in the stead of wheat?

By answering the above you will confer a favour on a young beginner, J. C.

Remarks.—J. C. will find his enquiries answered, to some extent, in our last issue. He is probably mistaken in the name of the insect, which we regret to hear has advanced already so far west as the county of Middlesex. It is the *midge*, and not the *weevil*. The only advice we can give a "beginner," with our present knowledge of the subject, is: 1st, To prepare his land *well*. 2nd, Sow early;—for this neighbourhood, we should say not later than the second week of September. 3rd, Select early and hardy varieties of wheat, such as the *Improved White-Flint*; *Kentucky White-bearded*, or as it is commonly called, *Hutchinson's*;—*Blue stem*; *Soule's*, and *Hume's White Wheat*. There may be other kinds equally valuable, but the above are the earliest, hardiest, most prolific and produce the best flour of any with which we are acquainted. Ploughing wheat stubble in the fall has been recommended, with much show of reason in its favour, but it is evident that the practice must become general before much good can be expected from it. One large field left unploughed would furnish flies enough in the spring to spread the mischief over a whole neighborhood, or settlement.

There is no variety of wheat entirely exempt from the attacks of insects. The *Mediterranean* is said to be less liable to their attacks than any other, but it is a coarse, red-bearded wheat, and makes inferior flour. It is an early kind, but the grain is as dark as rye, and seldom plump. It is not grown in Upper Canada to any great extent.

As to recommending other crops in the place of wheat we should require to know the character of the soil, and other local facts before venturing to give advice. We believe most farmers grow too much wheat. It is the common error in this part of the country, and is no doubt one cause, and probably a chief cause of the rapid increase of insect depradation. Sometimes wheat follows wheat on the same soil; frequently it follows oats; often pease. The land is badly tilled, not half, if at all, manured; its strength is thus exhausted, and the wheat plant, robbed of its proper support, languishes, and if it does not *die* outright, becomes a prey to insects from its root to the topmost kernel of the ear.

Gadflies.—The gadfly not only persecutes by its bites, during summer healthy oxen, but also deposits its eggs in their skin, which give rise to tumors on the back and other parts, in which the larvæ become developed; they live there on the succulent fluid which the soft parts secrete, and make their escape thence in the following spring, in order to become metamorphosed. The greater the number of tumors the more is the strength of the animal diminished by the pain and supperation. For this reason we should endeavor to free the animal as soon as possible from these larvæ pests by frequently washing these tumors with camphorated brandy, or forcibly compressingthem, which either crushes the insect or forces it to make its exit. When they have attained the size of a filbert, an incision must be made into the part, which is then to be covered with a pitch plaster. A few doses of sulphur are to be given internally. We are told that these oxen which have taken sulphur for a long period of time are not infested by gadflies.—*Gunther.*

WHEAT FLY—FIFE WHEAT—GAYLORD'S ESSAY, &c.

To the Editor of the Agriculturist.

Hamilton Gardens, August 20th, 1856.

Dear Sir,—I was much pleased to see that you had devoted the leading article in the last number of your interesting paper, to the subject of the Wheat Fly or Midge (*Cecidonria Tritica*); and I am sure that a subject of more importance, at the present period of our Agricultural history does not exist; inasmuch as the question of whether we can grow wheat or not for some time to come, almost hinges upon it. We know that in Canada East, in many of the New England States, and also in many parts of New York State, wheat growing has almost been abandoned in consequence of it. I have been induced to trouble you with this kind of rambling paper, from your invitation to farmers, to give their experience on the subject, as far as their observations extend; and there is no way in which truths or facts can be arrived at more surely than in this way. I am pleased to see also, that the Minister of Agriculture has taken your hint, and is now offering premiums for the best essay on the subject, for which movement in the right way, he is entitled to the best thanks of the farming community.

It is now the fourth season since the *Cecidomyia Tritica* made its appearance in our neighbourhood. The first two years its ravages were very partial, and the damages trifling, being confined to the late fall wheat and the early spring. The third (that is last season,) the damages in many places here were very great. In my own, of which I wish to speak more particularly, the fall wheat was much more injured than before, and a field of spring wheat, sown about the 10th of May, was destroyed by it to the full amount of 75 per cent.; while a field adjoining, sown ten days later, was nearly free from it altogether. I had frequently read in the papers, that where the Weevil had prevailed, it had been overcome partially by late sowing; but then (that is some years ago) the cure to me seemed as bad as the disease, because I knew that in the neighbourhood, the only way to prevent the rust, was to sow as early as the seed could be got in, (I am now speaking of spring wheat) and if we had nothing but the old varieties, such as Tiberian, Club, Tea Wheat or Black Sea to sow late, would be avoiding Scylla to run on Charybdis; but now I rejoice to state, that we have got a variety that can be sown at any time as late as the middle of June, which will mature and ripen without rust; this is the Fife, or as it is sometimes called Scotch wheat.

My crop this season was sown on the 22nd and 23rd of May, and is now nearly ripe, and is as fine a crop as can be desired, not heavy, in consequence of the dry season, but promises 25 or 30 bushels per acre; it is as full as it can be, and I have not seen a trace of Weevel in it yet, I have no spring wheat sown earlier this year, but in chance heads which have come up in a pea field, sown ten days earlier; I perceive the wheat is altogether destroyed. Now to show you how little we can speak generally on Agricultural subjects, this wheat which has done so well on certain soils, is almost valueless on this; while it does so well on such soils as lay on the Lake Shore from Port Hope to Grafton in Haldimand, when sown on sandy loams with a porous subsoil, the Bald Club beats it altogether.

Now sir, instead of a farmer being according to the ideas of the old school, an uneducated clod-hopper, depending altogether for his practice upon the tradition of his forefathers, there is no profession where a more general knowledge is required; he should not only be instructed in all the manuel operations of his business, but also in Chemistry, Geology, and all the ologies extant. I am no professor of Geology, but I have read books on that science, and if I cannot describe technically, the varied rocks, soils, and other formations of our country, I can form my own ideas of them from what I have read; and I wish to describe the nature of the soil on which this Fife wheat flourishes. The country before mentioned between Port Hope and Grafton, lays as follows; west of Port Hope the land is many feet above the Lake level, varying from 25 to 150 feet; (which I believe is about the height of what is called the Highlands in the Township of Scarboro') this obtains most of the way from Port Hope to Toronto, but east of Port Hope, the land is only a few feet above the lake level, not exceeding ten in the highest part, Some two or three miles back from the lake, the country begins to rise into broken hills, varying from 50 to 200 or 300 feet in height; from the foot of those hills the country slopes gradually to the lake, sufficiently in most places to carry off the water. This plain as I may call it, is crossed every half mile by streams of water, (rising in the hills before

m ntioned) varying from a small stream to a little rill, which only runs in wet weather; these of course, partially drain the soil, and also form outlets for artificial drains where required. This is the surface, the foundation is limestone. I believe of the oldest formation, being mostly devoid of organic remains. Above the limestone the formation is gravelly clay, mixed with stones of all kinds, from the gigantic boulder to the smallest pebble. On the top of this there is from 2 to 4 or 5 feet of brown clay, such as the red bricks are made from. The surface is composed of vegetable matter, sandy loam, and black soil, according to the *lay* of the soil. If high the sandy loam prevails, if low the black.

Now sir, Fall wheat is so uncertain on this tract of country, that before the introduction of Spring wheat, its cultivation was almost abandoned; and I remember the time, when on a farm of 100 acres clearance, we would not risk more than 10 acres in Fall wheat; enough to supply the house with bread. The Siberian Spring wheat, was the first variety introduced among us, somewhere about twenty years ago, and it produced quite a revolution in the farming operations; instead of growing 10 or 12 acres on a farm of 100 acres, 50 or 60 and sometimes more were grown, and farmers, who had been in the habit of selling 100 bushels of wheat in a year, now many of them sell 1000. The Siberian continued to do pretty well for six or seven years, and then totally failed. You may travel 100 miles now, and not see an acre of it; so mysterious are the operations of Nature. This variety was succeeded by the Club; there are by the by two varieties under that name, the bald, and the bearded. The bearded originated in one of the Western States, I believe, and was then called Hedge Wheat; it has a short stumpy head with very long strong beards, a very dark red berry, not liked any better by the millers than the Fife; the fact is, it possesses in its composition more gluten than starch, compared with fall wheat; and what the millers like, are those wheats which are composed of starch more than gluten, they grind so much nicer. All these varieties of spring wheat before mentioned, have now run out, on the tract of country before described; but the Fife, the glorious Fife, I call it, is now as good after being grown 7 years as it was at first, without the least sign or vestige of failure in any shape except from Weevil; and to know that you can be sure of a crop of wheat sown as late as the 10th of June, and to fill and ripen without a speck of rust, and yield 20 to 30 bushels an acre, is surely a desideratum. Why sir, ten years ago, it would have been considered incredible.

I don't know whether you ever heard how this variety of wheat originated, if you have, there is no harm in telling the story again. I speak from memory. It is now seven or eight years since I heard it told, but it is something like this. A farmer in Otonabee Township by the name of Fife, a Scotchman, had a small parcel of wheat sent him from home by a friend. It was I believe a spring variety, and obtained from one of the Baltic ports on the Baltic. Mr. Fife sowed the wheat in his garden, and it all with the exception of one single plant, rusted so much as to be absolutely worthless. This single plant forming such a contrast with the rest, being as bright as gold and entirely free from rust, induced Mr. Fife to save it. He sowed the produce of it the following spring, and after it had almost got to maturity, some cattle broke into his garden, and destroyed it except a few heads. Those Mr. Fife sowed again, and when the Show of the Agricultural Association was first held in Cobourg, eight years ago, he had several bushels on hand. I recollect this statement being laid before a Committee of the Agricultural Society at that time, but I believe no action was taken upon it; but the Agricultural Society for the Township of Otonabee took it up, bought the seed and distributed it amongst its members. I may have mis-stated the matter in some particulars, but however that is the substance of it, and I have thought that the name of such a person, should in some way be held up before society to be honoured.

Well say you, but what has this to do with the (*Cecidomyia Tritici?*) Much I say. When you have got a kind of wheat, that you can sow at any time before the middle of June. and have it mature without rusting, and when you have ascertained that this same insect can only do its mischief for about six or seven days, and that is when the wheat is just shooting out, and when your early Fall wheat is out of the way; as I believe you are correct in your remarks in the *Agriculturist*, but you speak for fall wheat only. Then I say sow your fall wheat early, and your spring late. This is the result of two years experience with me. I was partly convinced last year, but now I speak confidently, from what I now observe. My idea is, there is no remedy in the shape of nostrums, and if there were, the application would be next to impracticable. Lime has been recommended, sown when the insect was first discerned, but the difficulty of sowing it, when

the wheat is in that stage of growth, is next to impossible, and then I much doubt its efficacy.

The most valuable article I have read on Entomology, or that part of it which most interests the farmer, is found in the transactions of the New York State Agricultural Society, for 1843. The essay, for which a prize was awarded, was written by the late Willis Gaylord, then one of the editors of the *Albany Cultivator;* you no doubt have seen it, if not you will find it in that volume. Much more experience has resulted since this essay was written, thirteen years ago, but the misfortune is, that the farmers have such vague ideas about things of this sort, that their observations are of very little value.

The following observations from Mr. Gaylord, is much to the point:—"The man who shall furnish the farmers of the United States, with a full account of the different insects that prey upon our wheat crop; its roots, stems, leaves and seeds, will render the Agriculture of this country a service, entitling him to more gratitude, and securing him a more certain claim to a long and honorable remembrances, than could be acquired by the most brilliant diplomatic, or literary labors. The thoroughly educated entomologist can alone do this, and it is a work requiring years for its successful execution. The farmer finds his wheat crop cut off year after year, and he knows the injury that is done by an insect; but his knowledge of insects, their habits and transformations, is too limited to enable him to observe and describe correctly, and it is not to be expected it should be otherwise. The labour must be performed by the professed entomologist, aided in his observations by the farmer, or it will never be done at all; and when it is remembered how essential such a thorough examination of the insects that prey on our field crops, those of grain in particular, is the agricultural prosperity of our country, it is to be hoped the investigation will not be much longer delayed. Until such full accounts and descriptions are given, the most that can be done is to collect such facts as shall best enable the farmer to know his enemies, and avoid or destroy them."

I perfectly agree with Mr. Gaylord that the farmer can do little without the entomologist, but then the farmer should do a *little*. He should inform his mind by reading works on Entomology, just to get a smattering of the science; he should also provide himself with a small magnifier, by which to observe the actions of those insects which trouble him; keep datas when they are at work, and describe all he observes; then furnish the results to the entomologist, If one tithe of our farmers would only do that *little*, the aggregate of the information so procured, would be of not only immense advantage to the man of science, but it would also throw a great amount of light on the subject generally; so that the farmer would have a much better chance of plodding along alone, than without it.

And now, dear sir, I think I have been sufficiently prolix for one subject; it is but little light after all I have been able to throw upon the matter, but one of the main objects in writing this long rambling article was, to set an example, and draw out as many of my brother agriculturists ss possible.

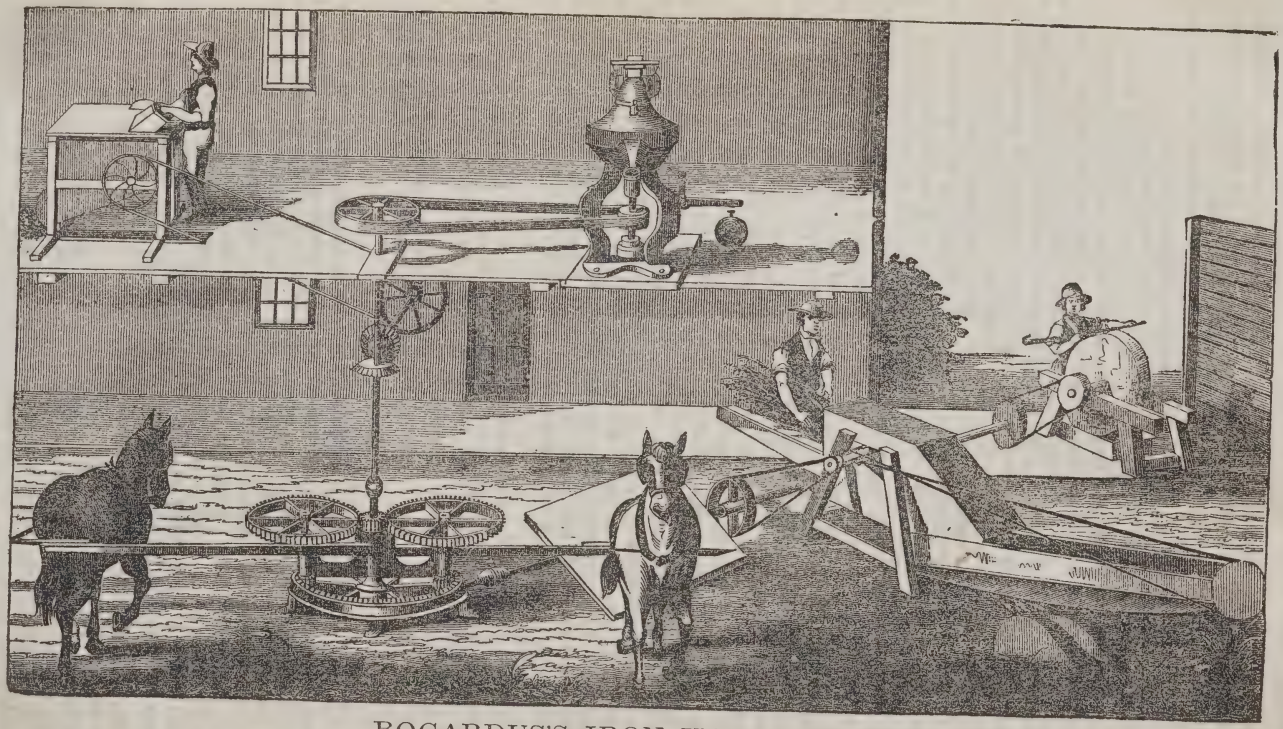
I am, dear sir, yours, &c.

JOHN WADE.

FEEDING SWEDISH TURNIPS TO MILCH COWS.—The feeding of turnips to cows in winter, when pasturage is gone, has a tendency to add largely to the flow of milk. The use of them is disliked however, by dairymen, on account of the strong and disagreeable turnipy flavor they impart, both to the milk and butter. A remedy for the evil was discovered some years since by Rev. A. Huxtable, of England. This remedy is important, and as many of our readers may have never seen it in print, we insert the receipe which is as follows:—"Dissolve half an ounce of chloride of lime in one gallon of water, and add a tablespoonful of this to each gallon of milk. Frequently, if the turnips are very strong, three times as much will be required; but this will depend upon the dairywoman's taste."

SALT.—Mr. John Ellis, an intelligent practical farmer in England, made the following experiment with salt, as manure for wheat:—

"On one-fourth of an acre of a wheat field he sowed in March 50 lbs. of salt; and on an adjoining one-fourth of an acre of the same kind of land, and similar treatment, he obtained less wheat than that grown on the salted portion by 1½ bushels, consequently showing an increase per acre by salting, by about six bushels per acre." He now uses salt regularly, from 2½ to 4 cwt. per acre. He considers it however, least beneficial on heavy clay lands.



BOGARDUS'S IRON HORSE POWER.

The above diagram of BOGARDUS'S IRON HORSE POWER illustrates the working of it as adapted to the various kinds of Machinery. This power can be worked either with one or four horses, is compact, strong and portable, and is used in the field or under cover with equal facility.

THE CROPS IN ENGLAND, &c.

We have been favored by the Hon. Adam Fergusson with the reading of a private letter, dated the end of July, from an old and distinguished agriculturist in the north of England, from which the following is an extract. Later accounts represent the weather throughout the British islands as exceedingly fine, and the crops were fast coming to maturity. In Scotland and Ireland, the crops generally are reported above an average. In a letter just received from the south of England, dated August 14th, the wheat harvest is said to have commenced auspiciously. The hop crop will again be large. The Royal Agricultural Society's Show, recently held at Chelmsford, was among the most successful; and the progress which it serves to test may be pronounced to have been conspicuous and well defined. In all the classes of Live Stock the general quality was superior in a marked degree, while so great a number of well manufactured implements, suited to the wants of an advancing state of tillage, was never, perhaps, before exhibited.

"We have not been so much favoured by summer weather, I imagine, as you have, a prevalence of cold easterly winds for an unusually long time, was followed by heavy rains in June, which produced a check in everything but grass crops. Hay is good, and latterly has been well secured. A great many large stacks have risen under my eye in the last ten days; but the harvest must be late, as much wheat is only yet in bloom. I was lately over some parts in England, at London, Greenwich, &c., as Judge at the English Society's Show in Essex, so that I saw a good deal of corn land. I should say that Barley is a full crop, and in pretty good forwardness. Wheat hardly an average; though in some highly favoured districts, with good dry soil, it looks large; on cold clays it is the reverse. Oats are generally poor. The turnip crop, on which so much depends, was, in many parts, badly sown, from the wet season, and the prospect of a deficient crop is rather telling on the sale of lambs and lean stock. Wool has brought a good price, about 1s. 3d. to 1s. 5d. per lb. Farmers are in good plight, and improving in management. It is wonderful what an impulse has been given to cultivation, and what large quantities of guano, phosphates, petre, &c., are now applied to land. You will likely have seen some account of the Agricultural Society's meeting at Chelmsford, where I was one of the Judges of Shorthorns. Our first prize bull, "Townley's, Master, Butterfly," was sold to a company in Australia for the sum of 1200 guineas! I think the French and Australian exceeded the Americans in price this season. It was a new feature in our meeting to have foreigners showing stock and getting prizes, but these they could not have got in common competition; for their animals had no quality, save for the dairy and the plough."

Silvering Glass.—The following is a receipe for silvering glass:—Take 1 oz. pure nitrate of silver, 1 oz. aqua ammonia, 2 oz. distilled water. Mix and add 2 oz. of pure alcohol, 2 oz. of distilled water, 1-4 oz. of grape sugar. The above is placed in the article to be silvered (a bottle, for instance), and kept at a temperature of 160° till the silvering is effected. The purity of the chemicals influence the result, in fact all depends upon that.—Jos. Fitzpatrick.

[Those beautiful silverized glass globes seen in the windows of many stores are produced by the above described process. The information communicated by our correspondent is useful and interesting.—*Sci. Am.*

Soap Suds for Currant Bushes.—A correspondent of the *Indiana Farmer* says:—"I have found the cultivation of currants to be very profitable. By care and attention I greatly increased the size of the bushes and the quality of the fruit. My bushes are now about six or eight feet in height, and are remarkable thrifty. The cause of this large growth, I attribute in a great measure to the fact that I have been in the habit of pouring soap suds and chamber lye around their roots during the summer season. I am satisfied from my own experience and that of some of my neighbours, that this treatment will produce a most astonishing effect upon the growth and product of the bushes, and would advise others to give it a trial."

ACTION OF LIME ON SOIL.

Lime sweetens the soil by neutralising any acid character it may possess; it assists the decomposition of inert organic matters, and therefore increases the supply of vegetable food to plants. For both these reasons it is a very valuable addition to peaty soils. Lime decomposes the remains of ancient rocks, containing potash, soda, magnesia, etc., occurring in moist soils; it at the same time liberates silica from these rocks. It is consequently a means of the supply also of most important mineral food for vegetation. Lastly, lime is one of the substances found uniformly and in considerable quantities in the ashes of plants; it is a necessary part of the plant's structure, and if it is deficient in the soil its application may be beneficial simply as furnishing a material indispensable to the substance of a plant. Such are some of the explanations given in books of the action of lime on soils.

But, by experiments lately made, it is found that lime is capable of liberating one-half of the ammonia contained in the soil. It is now possible that for profitable agricultural use the ammonia of the soil is too tightly locked up in it? Can we suppose that the very powers of the soil to unite with and preserve the elements of manure are, however excellent a provision of nature, yet in some degree opposed to the abnormal crops which it is the business of the farmer to cultivate? There is no absolute reason why such should not be the case. A provision of nature must relate to natural circumstances, for instance, compounds of ammonia may be found in the soil capable of giving out to the agencies of water and air quite enough of ammonia for the growth of ordinary plants, and the preservation of their species; but this supply may be totally inadequate to the necessities of man. It may be argued that the earth was made for man, and consequently there can be no natural law interfering directly with the welfare of his kind; but a population of greater civilization and greater requirements also pre-supposes one of greater powers and appliances. It is the function of man to make use of the laws of nature—to modify the natural conditions. Now, it is not impossible that the laws which preserve the supply of vegetable nutrition in the soil are too stringent for the requirements of an unusual and excessive vegetation such as the cultivator must promote. In the case of ammonia locked up in the soil, lime may be the remedy at the command of the farmer—his means of rendering immediately available stores of wealth which can otherwise only slowly be brought into use. In this view lime would well deserve the somewhat vague name that has given it, namely, that of a "stimulant," for its application would be in some sort an application of ammonia, whilst its excessive application, by driving off ammonia, would lead to all the disastrous effects which are so justly attributed to it. I do not wish to push this assumption too far, but if there be any truth in it, it points out the importance of employing lime in small quantities at short intervals, rather than in large doses once in many years—*Pof. J. T. Way, (Eng.)*

Making a Needle.—Needles are made of steel wire. The wire is first cut by shears from coils, into the length of the needles to be made. After a batch of such bits of wire are cut off, they are placed in a hot furnace, then taken out and rolled backward and forward on a table until they are straight. They are now to be ground. The needle pointer takes up two dozen or so of the wires, and rolls them between his thumb and fingers, with their ends on the grindstone, first one end and then the other. Next is a machine which flattens and gutters ten thousand needles an hour. Next comes the punching of the eyes; and a boy does it so fast the eye can hardly keep pace with him. The splitting follows, which is runing a fine wire through a dozen, perhaps, of these twin needles.

A woman, with a little anvil before her, files between the heads and separates them. They are now complete needles, but are rough and rusty, and they easily bend. The hardening comes next. They are heated in batches in a furnace, and when red hot are thrown into a pan of cold water. Next, they must be tempered, and this is done by rolling them backward and forward on a hot metal plate. The polishing still remains to be done. On a very coarse cloth needles are spread, to the number of forty or fifty thousand. Emery dust is strewed over them, oil is sprinkled, and soft soap daubed, by spoonfuls over the cloth; the cloth is then rolled hard up, and, with several others of the same kind, thrown into a sort of wash-pot, to roll to and fro for twelve hours or more. They come out dirty enough: but after rinsing in clean hot water, and tossing in sawdust, they look as bright as can be, and are ready to be sorted and put up for sale.—*Scientific American.*

EXPENSE OF AN OSAGE HEDGE.

The Ohio Valley *Farmer*, a new and well-conducted monthly, published at Cincinnati, commenting on a proposed *cheap* plan of growing a hedge, gives us the following figures &c.:—

We are advocates of hedge planting, and believe that the Osage Orange is destined to add largely to the material wealth of our country, as well as beauty to our rural scenery. But the construction of a durable hedge is no child's play, and requires much care and knowledge, expense and patience.

In the first place the ground should be properly prepared; and the true and proper way to effect this is to trench the ground from 2 to 2½ feet in depth, by 3 to 4 feet in width. In making this trench, the ground should be all thrown out to the required depth and width, and unless the land is naturally of great richness, the well pulverized soil that is to be returned back into the trench, should be mixed up with rich mould, or well rotted manure, brought and added to the original soil. If the soil is of a clayey nature, arrangements should be made for the passing away of all surplus water that might afterwards find its way to the bottom of the trench, and be likely to remain there stagnant.

The reader may judge what it would cost to prepare the ground for one rod in this thorough manner. We think 50 cents is as low a rate as could be possibly calculated upon. Then the cost of cultivating, hoeing, and weeding the plants, and pruning the same, the above writer places at 5 cents a rod annually, when in reality the cost would be twice—if not three times this sum. But at 10 cents a rod, this item alone for the five years would be 50 cents a rod.

Including cost of plants, and all other expenses, a "good and durable" hedge should not be expected for a less outlay than $1.50 a rod, with a further annual expense of 5 cents a rod for pruning, after the 5 years' growth has been obtained. It is idle to expect to construct a good hedge in any cheap, slip-shod manner. No one can travel a day in any part of our country without witnessing these puerile attempts towards the construction of live fences. Without any preparation of ground worth naming, and with but little attention to pruning, a beggarly show of tall, waving, weak plants, is all that is left as an apology for a fence, after a four or five years' effort. It is absolutely necessary, in order to have a thick, thrifty growing hedge, to first prepare the ground well, so that it may be able to feed and support the dense mass of foliage sought after; and then after planting, to give repeated close prunings to induce the out-cropping of a multitude of shoots.

Wheat Crop and Draining.—Our friend John Johnson, Esq., of Seneca county, writes us under date of Aug. 15, as follows:

"I have threshed 25¼ acres of this year's wheat-crop (Soule's wheat), from which I have 847 bushels of 60 lbs. to the bushel, and which I sold for $1,396,55; but you must not take this as a criterion of the crops in this county. With one exception. I have heard of only one farmer who has over 15 bushels to the acre, on undrained land, and he said he had nearly 18 bushels of Mediterranean, but his *Soule's* was nothing. You must make our farmers do better than that, else you may as well turn your paper into a political one, and give up agriculture at once. *The crops on drainad lands are good.*

Mr. Johnson adds—"That is not good advice you give in your last paper, to "drain a few rods," for the following reason: In the first place you must have a sufficient cutlet, no matter how little you drain, and often the making the outlet is expensive. In the next place, if you drain a small piece at the lower end of your field, you will not get much benefit from it, as you must drain your upland to make perfect work on *your low land*, or at least you must drain your upland as far up as you can get water to run in a wet time—*Country Gentleman.*

Care of Colts.—1. Keep colts in good order, not too fat, with a variety or change of food. Oats, cut feed or roots, and two or three quarts of grain—not more—per day.

2. Wean colts before taking up for winter, if strong and lively; if not, afterwards, but according to the time of being foaled.

3. The colt should be weaned according to the strength of it and its dam, but generally at the age of six months.

4. It is not advisable to let a colt draw on the mare longer than can be helped.—*Correspondent Virginia Farmer.*

Fences operate in two ways; if good, they are adefence; if poor, they are an offence.

DISEASES OF ANIMALS, &c.

A correspondent of the *Country Gentleman*, writes that paper as follows:—

Editors of Country Gentleman.—Having often seen requests in different papers, for remedies for different diseases in cattle, horses, &c., and having myself arrived at the age commonly allotted to man, and having seen some of the good effects of experiments, and feeling it to be a duty to do as much good as possible when I have an opportunity, I send you a number of receipts.

Cure for Hollow-Horn in Cattle.—Take a tea-kettleful of boiling water; turn the head of the creature one side so as not to scald the hide, then pour the water on to one horn until the creature feels it. Then on the other; so alternately, which will probably produce considerable perspiration. Then give 2 ozs. or more of good mustard seed in some feed.

To Prevent Hollow-Horn.—Cut off the end of the tail as far as it is minus bone, whenever you discover the hair rolled or twisted, if the weather is warm and propitious, and not likely to freeze. Then feed them well and there will be no danger.

For Cattle that have Eat too much Corn or other Grain.—Take one quart of good yeast, mix a half-pint of human excrements, and pour it from a bottle down the creature's throat,' and I think you will soon hear from it.

Cork on Oxen's Feet.—Put on British oil.

Cure for Foul in the Feet.—Cleanse between the hoofs with a rope; then put in powdered blue vitriol.

For a Horse Kicked in the Stifle.—Put in fine salt often, and nothing else, or bind a small bag of fine salt on to the wound.

For a Flesh Wound on a Horse.—Boil the bark of green osier (Dog Mavamouse) to a strong decoction, and wash the wound often.

Wind Galls.—I do not believe that wind galls can be cured without running the risk of killing or ruining the horse, as they are caused by the undue secretion of the synovia or mucous fluid, that lubricates or greases the joints, brought about by too hard use. A dirt floor or well littered stall, moderate use and good rubbing may prevent them from increasing, and they may be cured by lancing and bandaging—but lancing may cause inflamation and consequent stiffness of the joint. I have known one case successfully treated in this way, but I would never try it, believing that the risk is too great for what is no injury, but merely a blemish.—r. c. *in Country Gent.*

THE WONDER OF INDIA RUBBER.

Among the recent applications of India Rubber none are so remarkable as the manufacture of what is called "Hard India Goods," into which the rubber enters most largely. There is in New York a Company called the Beacon Dam Company, which is devoted to the manufacture of this kind of goods. By a process that originated with Mr. Chaffee, coal tar is mixed with the rubber, and the compound makes one of the most solid, elastic and elegant articles that can be found in the market. It resembles polished stone, is as black as coal, needs no finish, and has of itself as hard and exquisite polish as it is possible for any metal to bear. There seems to be no end to the articles to which it can be made. Canes of the most elegant form and appearance are constructed out of it, and are as tough as so much steel, while they have all the elasticity of whalebone. Cabinet work, inlaid and mosaic, ornamental to the parlor and the chamber. Spectacle bows and glasses for the eye, are made so light as to be no annoyance, while their elastic character cause them to sit firm to the head; opera glasses, castors, sand stands, ink stands, brushes for the hair, that cannot be harmed by hot water, tape lines, pen holders, pencil cases, cigar cases, government boxes for the army and navy, government buttons, and an endless variety of articles are thus made, and the articles are of a most elegant character; syringes of a novel form and character; machines for oiling cars and engines, on a new principle, indicate that this new use of rubber is to work a complete revolution in the arts and manufactures.

But one of the greatest applications of this new rubber manufacture is the new telegraph wire that is made from it. It needs no poles, it is laid in the ground. It needs no covering; a trench of a few inches is dug; the rubber telegraph wire is put in and covered up; the wire is enclosed with the rubber, no dampness can effect it; no storm render the wires inoperative; no insect sever; no rust corrode. It would appear fabulous if we should state the miles of this wire that have already been engaged, and the goods cannot be made to meet the demand.

The government of the United States is now the best customer of the Beacon Dam Company. The call for the Navy and Army button is immense; the article is elegant; the naval button has on it the motto, "don't give up the ship." And so tough are these rubber buttons, that if one is placed on an oak plank and pressure applied, it can be sunk clear into the plank, snd will come out unharmed; and the government shaving boxes, which are about three inches in diameter, are so strong that a man weighing 200 pounds can press his whole weight on one of them and not break them. Gun handles, sword handles, and other military implements are constructed from this material. They are cheap, elegant, enduring.—*Boston Journal.*

Curing Provisions in Corr.—A system of curing provisions has for some years been in operation by several of the most eminent continental firms, particularly in Hamburg, which permits of meat being cured at all seasons of the year, and not during the winter months only, as has hitherto been the case in this country. As frequently happens when a superior mode of operation prevails in any particular place, the utmost secresy is employed to prevent the peculiar nature of the processes from getting publicity, and strangers are in most instances excluded from the concerns where this new mode of curing is carried on. Urged by a desire to discover in what this new system differed from the ordinary mode, Mr. Murphy, of the firm of P. Murphy and Son, of this city, (Cork) determined on visiting Hamburg, and examining the matter for himself. It was not without difficulty that he succeeded in his object; but succeed he did, and the result is the introduction of the continental mode of curing in this city, the only locality in the kingdom in which it has ever been in operation.

The materials used in curing beef, pork and bacon, according to the most approved continental plans, are ice and salt, mixed together in certain proportions, varying according to the temperature of the weather, the quality of the provision to be preserved, and the market for which it is intended. Mr. Murphy has, for the purpose of carrying on the provision trade, and the subsidiary branches with which it is connected, the interest in a suite of extensive stores at the Watercourse, covering, in the aggregate nearly two acres. Here, with some alterations, new buildings, &c., which are in course of completion, there will be ample accommodation for every branch of the business, the extent of which may be estimated when it is stated that for provisions alone 60 or 70 coopers are generally employed in the formation of casks. The newest and most approved methods of killing the animals are adopted, so as to combine the greatest possible despatch with the *minimum* amount of injury to the meat. The carcases having been scalded or singed, then cut into the proper sizes, they are ready to undergo the operation of curing. For this purpose ice and pickle are put in requisition, the former being kept in chambers specially assigned for its reception. In a row of large and deep tanks, nine in number, the pieces of provision are laid in ice and salt, and then undergo the process of curing, which, unless to the initiated, is mysterious. The duration of the process depends on circumstances; but nothing can be more perfect than the mode in which the ice succeeds in effecting that great desideratum—the production of sound, firm and perfectly sweet beef, pork, or bacon, warranted to stand any climate. In these tanks, 7,200 carcasses can be cured at one and the same moment. After the pickling has been concluded, there are distinct portions of the concern appropriated to the preparing and drying of hams, flitches, &c., either by artificial heat, or the spontaneous action of the atmosphere.—*Irish Paper.*

The Grass.—Consider what we owe merely to the meadow grass, to the covering of the dark ground by that glorious enamel, by the companies of those soft and countless, and peaceful spears. The fields! Follow forth but for a little time the thoughts that we ought to recognize in those words. All spring and summer is in them—the walks by silent, scented paths—the rest in noonday heat—the joy of herds and flocks—the power of all shepherd life and meditation—the life of sunlight upon the world, falling in emerald streaks, and falling in soft, blue shadows, where else it would have struck upon the dark mold of scorching dust—pastures beside the pacing brooks—soft banks and knolls of lowly hills—thymy slopes of down overlooked by the blue line of lifted sea—crisp lawns all dim with early dew, or smooth in evening warmth of barred sun-shine, dinted by happy feet, and softening in their fall the sound of loving voices, all these are summed up in these simple words; and these are not all. We may not measure to the full depth of this heavenly gift, in our own land; though still, as we think of it no longer, the infinite of that meadow sweetness, Shakspeare's peculiar joy would open upon us more and more, yet we have it but in part. Go out in the spring time, among the mea-

dows that slope from the shores of the Swiss lakes to the roots of their lower mountains. There, mingled with the taller gentains of the white narcissus, the grass grows deep and free, and as you follow the winding mountain paths beneath arching boughs all veiled and dim with blossom—paths that for ever droop and rise over the green banks and mounds sweeping down in scented undulation, steep to the blue water, studded here and there with new mown heaps, filling all the air with fainter sweetness—look up towards the higher hills, where the waves of everlasting green roll silently into their long inlets among the shadows of the pines; and we may perhaps at last know the meaning of those quiet words of the 147th Psalm, "He maketh grass to grow upon the mountains." There are also several lessons symbolically connected with this subject which we must not allow to escape us. Observe the peculiar characters of the grass, which adapt it especially for the service of men, are its apparent humility and cheerfulness. Its humility in that it seems created only for lowest service—appointed to be trodden on and fed upon. Its cheerfulness, in that it seems to exult under all kinds of violence and suffering. You roll it, and it is stronger the next day; you mow it, and it multiplies its shoots, as if they were grateful; you tread upon it, and it only sends up richer perfumes. Spring comes, and it rejoices with all earth—glowing with variegated flame of flowers—waving in soft depth of fruitful strength. Winter comes, and though it will not mock its fellow plants by growing then, it will not pine and mourn, and turn colorless or leafless as they. It is always green, and is only the brighter and gayer for the hoar frost.—*John Ruskin.*

Wool.—The *Wool Grower* is of opinion that the price of wool will be materially advanced this Spring for all that is brought to market in good order. If farmers intend to hold wool, it should be carefully washed and put in prime order. One advantage in raising wool over many other articles, is the imperishable character of the material. If well prepared and put up in a merchantable manner, it can be stored away for a long period without deterioration, and hence the owner, if his pecuniary necessities do not require an immediate sale, can await a favorable market. Combinations of dealers to put down prices; adverse seasons to manufacturers; excessive importations; commercial revolution; and the thousand other contingencies which tend to depress the market, need not affect the farmer whose flock is usually a source of profit.

To Make a Balky Horse Draw.—The London *Times* gives a remedy which proved successful. After all sorts of means had been tried and failed, it was suggested that a simple remedy used in India should be tried—that is, to get a small rope and attach it to one of the fore feet of the stubborn animal, the person holding the end of it to advance a few paces, taking with him the horse's foot, when, as a matter of course, the horse must follow. The suggestion was at first ridiculed, but at last a rope was brought and applied as described, when the horse immediately advanced, and in a few minutes was out of sight, much to the amazement of the crowd. The experiment is simple and worth a trial.

Buckskins and Gloves.—A good recipe for cleaning leathers and buckskin gloves. Take half a pound of prepared chalk, half a pound of prepared alum, three cakes of pipeclay, half an ounce of oxalic acid, half an ounce of isinglass, one ounce of pumicestone powdered, one tablespoonful of starch, six tablespoonsful of sweet oil, two ounces of white soap. To be mixed in boiling water; the oxalic acid and prepared alum to be added last.

To Fatten Fowls.—Fowls may be fattened in four or five days by the following process:—Set some rice over the fire with skimmed milk, as much only as will serve one day.—Let it boil till the rice is swelled out; add a teaspoonful of sugar. Feed the fowls four or five times a day in pans, and give them as much each time as will fill them. Great care must be taken that they have nothing sour given them, as that prevents their fattening. Give them clean water or milk from rice to drink. By this method the flesh will have a clear whiteness.

Holes in Pies.—Persons who are in the habit of making pies during the fruit season should not make a hole in the top of their pies. By leaving the crust whole the juice is made to boil quicker, and thus the fruit is well done without the crust being burnt. The same result applies to meat pies.

Lemon Butter.—Twelve eggs, 6 lemons, 2 pounds white sugar, 2 oz. butter. Rub the butter and sugar to a cream, beat the whites and yolks separate, grate the rinds of the lemons; mix the yolks with the butter and sugar over a slow fire, then stir in the whites, and it is ready for use. Set away until cold. It makes a very nice sauce.

EFFECTS OF CLOVER HAY ON ANIMALS.

Some late writers have taken the position that clover hay produces a most injurious effect on domestic animals, particularly horses; and that to this cause the great increase of deceased horses is to be attributed. We lately heard a farmer affirm, that he believed the introduction of clover into general cultivation the greatest curse yet inflicted on the country, and assigned as a reason for this singular opinion its effects on animals when used as fodder. Late English writers have attributed to this kind of hay the prevalence of heaves in horses, and the great increase of other diseases that effect the respiratory organs. This is a most important subject, and should receive a full investigation. Clover is too important a plant to be discarded, or condemned, except upon the most satisfactory evidence. Its value as a fertilizer and a preparative for wheat, to say nothing of its use for pasture and hay, would demand that it should not be condemned unheard. For ourselves, we have very little belief in the injurious properties assigned to clover. We have used it constantly for pasture and for hay, more than thirty years, and never, to our knowledge, has any animal suffered from it; certainly, no horse has been taken with the heaves when fed on it, or while in our possession. As hay for sheep, we have considered it unrivalled, and should have no fears that any stock would not winter well with a supply of well-cured clover hay.

And here lies, we think, the great source of objection to clover hay. It is too often imperfectly cured. To save the leaves and the heads, which are apt to fall in handling or curing, the hay is put into the barn while the large stems are full of moisture, or the natural juices, and the fermentation which ensues causes the whole mass to become damp; and if not spoiled wholly, it becomes mouldy, black, and when used raises such a dust, it is no wonder that horses and cattle are choked or their lungs destroyed. Our experience shows that clover may be perfectly cured without losing any of its valuable parts; cured so that when fed out, no more dust will be flying than from timothy or herd grass, and we shall be slow to believe that from such hay any injury to animals ever ensues.—*Ohio Valley Farmer.*

Labels for Fruit Trees.—The labels which come from the nursery on trees, are not designed to be permanent, and they should be replaced with permanent ones at the first leisure after planting. Be particular that the wire by which the label is attached is not round the body of the young tree, otherwise it will, as the tree grows, be buried in it and materially injure the tree. The very best label we have ever used is a strip of thin sheet zinc, about four inches long and three-fourths of an inch wide at one end, cut so as to taper to a point at the other end; which, after writing the name of the tree, the date when set out, and where obtained, can be bent round one of the small branches, with the writing outside, and as the branch grows it will expand without injuring it.

The ink for writing on these labels is made thus: Take of verdigris and sal ammoniac each 2 drachams; lampblack, 1 dracham; water, 4 ounces, to be well mixed in a mortar, adding the water gradually. It must be kept in a glass-stopped vial. Write on the zinc with the ink, after shaking it well, in a quill pen: and after it is dry you may expose it to the weather or bury it in the ground for years, and it will be as legible as when first written.—*Louisville Journal.*

A Pretty Process.—Among the machines lately on exhibition at the agricultural exposition in Paris, was one for hulling wheat. It is said that by the methods now in use the bran, when it is separated from the wheat, carries away with it at least twenty per cent. of nutritive matter. The new process reduces this amount to four per cent. The hulled grains of wheat, seen through a microscope, present a perfectly smooth and polished appearance, something like that of potatoes when the skin has been removed by washing. The bran itself is but a pellicle, of which excellent paper is now made.—The inventor of the machine, M. Besnire de la Pontonarie, affirms that if this process had been applied to the grain consumed in France the past year, the crops, instead of presenting a deficit of seven million hectolitres, would have shown a surplus of three million hectolitres. (The hectolitre is a fraction over $2\frac{3}{4}$ bushels.) The cost of hulling a hectolitre of wheat by the new process is about four cents.

Propagating Fish.—Mr. Roswell L. Colt of Paterson, New Jersey, states in a letter to the Commissioner of Patents, that he has ordered from Scotland the spawn of the trout, carp and salmon, with the view of propagating them in the waters of New Jersey. He suggests that the Patent Office should import for distribution the spawn of the red mullet of Europe, as well as that of the sardines, for breeding in the Middle and Southern States.

EDITORIAL MISCELLANY.

Prize Essays.—Our readers will see, by reference to our advertising sheet, that the Minister of Agriculture has offered three prizes for essays on the diseases and insect enemies of the wheat crop. We fear the time is too short to do more than compile the information already before the public in the pages of agricultural papers and other similar publications. What we suggested was a Commission of intelligent agriculturists in different parts of the Province, to note the habits and character of the various insects that prey upon the wheat crop during two or three seasons at least, and to publish the results of their observation and experience for the public benefit. This plan should still be adopted.

University College.—Agricultural Department.—It will be seen from an advertisement in another page, that Professor Buckland will commence his course of instruction in Agriculture in November; and as it termin6tes in April, an excellent opportunity is afforded to such of our agricultural youth as are desirous of acquiring a higher and more systematic knowledge of their art. It is to be hoped that many of our young farmers will thus be induced to spend the approaching winter. Any young person possessing an ordinary English education might most advantageously attend not only the Agricultural class, but likewise other classes in which subjects are taught, that have a most important bearing on practical agriculture and mental training in general, such as Chemistry, Natural History, Mineralogy and Geology, History and English Literature, &c. A whole winter's instruction in these subjects would require an outlay of only a few dollars! Young farmers, cultivate your minds; make yourselves well acquainted with the principles on which your interesting and important art is based; the only sure way of obtaining success in it, and of becoming useful and respectable in the world.

Notice.—We feel grateful to those friends who have responded to the accounts sent them during the past month. Many, however, have not yet been heard from, but hope they will bear us in mind during the present month.

Provincial Exhibition of Upper Canada.—We are glad to learn that the extensive arrangements making by the Local Committee at Kingston for the Exhibition on the 23d, 24th, 26th, and 26th inst., are of the most satisfactory character, and fast approaching to completion. The buildings and spaces are more than usually extensive, and the cost, we are told, will exceed $10,000. This large outlay includes, of course, the permanent bulldings, &c., and is defrayed by the Local Committee. The Society's advertised premiums amount to upwards of $10,000, besides the large number of extras usually given. From all that we can learn, with such powerful inducements to competitors and visitors, we confidently anticipate a display in every respect worthy the public spirit and rapid progress of this age and country. Welcome all to Kingston, and continued prosperity to the agriculture and arts, useful and ornamental, of Canada.

Sale of Pure Bred Stock.—We direct the attention of our readers to Mr. G. Miller's advertisement of Stock for sale on 8th October. Mr. Miller's is well known to all who are in the habit of attendind our Provincial Fairs, and is of very high quality. We have no doubt the sale will be well attended.

Sale of Short-horn Cattle, Sheep, &c.—Such of our readers as are in want of pure Durham cattle, improved grades, and thorough bred sheep, would do well to attend the sale of Mr. R. Wade, Jun., Cobourg, whose unremitting attention and success in the importation and breeding of superior cattle for many years past have gained for him an established reputation. For particulars see advertisement.

New Seed and Implement Store, Montreal.—We are happy to learn that Mr. Evans, Jun., son of Wm. Evans, Esq., Secretary of the Board of Agriculture of Lower Canada, and the well known agricultural writer, has opened a Seed and Agricultural Implement Store in Montreal in which he will keep an extensive assortment of pure British and American seeds and a collection of the more useful implements and machines used by farmers. Such an establishment must be of great convenience and importance to our brother farmers in the Eastern section of the Province particularly, and we trust that Mr. Evans will meet with adequate support.

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THE PROVINCIAL EXHIBITION AT KINGSTON.

The Eleventh Annual Exhibition of the Provincial Association was held at Kingston on the 23rd, 24th, 25th, and 26th of September. The weather was, upon the whole, satisfactory. It was rather cold and windy on Thursday, and in the afternoon there was some rain, but Friday was a fine day, and large numbers of people thronged the gates until evening. The number of visitors was, probably, equal to any previous Show; though, from the large number who were admitted as members of the Local Societies, and by means of carriage tickets, which were issued liberally, and circulated freely, we apprehend the *books* will not shew an extraordinary crowd. The number of entries made in the Secretary's books was larger, we believe, than at any previous exhibition; but an immense number of articles, in nearly all the departments, were not forthcoming. Whether exhibitors found difficulty in shipping, or discovered that the expenses would be too great, we cannot say; but it is evident something of this kind induced many to change their resolution after entering their articles. Upon the whole, the Exhibition of this year is creditable to the Association, though not equal to some of its predecessors. The condition of agriculture in the vicinity of Kingston is not so good as in more western localities, and as a large portion of the Exhibition must necessarily be contributed from the surrounding country, it was to be expected that in variety, completeness, and general excellence the Show would be inferior.

The most striking feature of this Exhibition was the Crystal Palace erected by the people of Kingston in the middle of the Show ground. It is a large building, in the form of a Latin cross, and is enclosed chiefly with glass. The transepts run east and west, and north and south. There is a spacious door for entrance or exit in each of the four ends. The transports are large enough to allow a double row of stands for fruit, &c., in the middle of each, and also along each side, with space for the spectators to pass between. The convenience, safety, and ornamental appearance of this structure suggest the propriety of similar erections at other points where the Provincial Shows are likely to be frequently held. We believe it is a very general opinion that these

great annual gatherings should be held at three or four fixed points, Toronto being the centre, and that permanent buildings should be erected at these places for their accommodation. The cost of temporary buildings, which afford little or no protection in case of bad weather, and the risk which exhibitors of highly finished and valuable articles are compelled to run under the present system, are strong arguments for a more permanent arrangement. The extra cost of the present plan would more than pay the interest upon the capital that would be required to erect substantial buildings at three or four places, and the advantage to exhibitors and to the public would be very great.

Cattle.—The exhibition of thorough-bred Stock was not so good as we have seen it at former Shows. The Durhams exhibited by Mr. Stone, of Guelph, were very choice. He showed a pen of calves that could hardly be excelled in any country. Mr. Wade of Port Hope, G. Miller, of Markham, W. Miller, of Pickering, and Mr. Ferguson of Kingston, showed a few good animals each. The stock of the latter gentleman were in poor condition, which detracted from their appearance; but the breeder is not deceived by low flesh. In fact, a good judge will prefer to handle an animal in that condition. Mr. Ferguson had advertised an extensive sale on the grounds, but we were told that the bids did not take a sufficiently high range to suit his views, and but few actual sales were made. There were only some 80 entries in the Durham class, and many of these did not appear on the ground. At the Cobourg Exhibition there were 120 entries, and at the two previous Shows about the same number as at Kingston. In the Devon class, the competition this year was small. We missed the splendid herd of Mr. Locke, of Yarmouth, which formed a prominent feature of the Cobourg Exhibition. There appears to have been only 9 entries this year, against 76 last year—an unpleasant falling off. This is no doubt owing to the circumstance that the best herds of Devon cattle are owned at the west, and the trouble, expense, and risk of transporting them to Kingston were more than breeders cared to encounter. The Herefords made a poor show, both in number and quality. The President, Baron de Longueuil, of Kingston, was the principal exhibitor this year as well as the last. The Ayrshires were about as numerous as usual. There were 40 entries at Kingston, and 41 at Cobourg. The Montreal breeders carried off the principal prizes in this class. Mr. James Logan and Mr. J. Irving of that city possess some fine specimens of this excellent breed. Mr. John Boyes, of Amherst Island, who exhibited largely and successfully last year, only took one *first* prize this year. The Galloway cattle this year filled a larger space than at any previous show. There were 29 entries, against 9 last year. The chief prizes were carried off by John Fleming, of Vaughan, whose cattle are from W. R. Graham's importation. Mr. Roddick, of Cobourg, was also a successful exhibitor in this class. Grade and fat cattle made a good show.

Sheep.—The usual classes, Leicesters, South Downs, Merinos, Cotswolds, and Cheviots, were well represented. The Leicesters appear to be the most popular breed in this country. They combine the two requisites of wool and mutton in a larger degree than any other. They are also hardy and easily fatted. There were 128 entries in this class. At the London Exhibition there were 240 entries, being the largest show of Leicesters we have yet had. The Messrs. Miller, of Markham and Pickering, were not so successful this year as last. Mr. C. Walker, of London, and James Dickson, of Clarke, took the greatest number of first prizes. Mr. James Petty, of Huron, carried off the first prize for a ram, 2 shears and over, and he well deserved it. It is decidedly the best sheep we have ever seen of its class. Mr. John Spencer, as usual, carried off the chief prizes for South Downs. There were only

some 43 entries, being about the number at the last three or four Shows. Though Mr. Spencer had but little competition, his sheep were very superior. Merinos and Saxons made a poor show. The number of entries was not half as great as last year. Mr. N. Choate, of Hope, and J. Rymal, of Barton, were the principal exhibitors. The Cotswolds made a smaller show than at Cobourg. The same breeders appear on the field—Mr. Stone, of Guelph, Mr. Miller, of Pickering, and Mr. Miller, of Markham. Mr. Stone carried off the first prizes, except for shearling ram, which was awarded to G. Miller. The Cheviots appear in greater numbers this year, Mr. Dickson, of Clarke, competing with Mr. Roddick, who was "alone in his glory" at Cobourg. The prizes were about equally divided between these gentlemen. This breed of sheep, in our opinion, well deserves the attention of Canadian farmers.

Pigs.—The show of pigs was not extensive, but very good. They were nearly all contributed by breeders in the neighbourhood of Kingston. Mr. Briggs, of Kingston, exhibited some splendid pigs. The Suffolks are a splendid breed, and seem to thrive well in this country; so also is the Essex. They do not seem well provided for cold weather, but a little more care and shelter will supply the deficiency.

Poultry.—To our mind the show was an excellent one, though we heard some fault-finding among the amateurs and fanciers. The arrangement of the coops was very convenient for exhibition, and we hope the same plan will be followed at future Exhibitions.

Grain.—The show of spring wheat was the best we have seen at any of our Provincial Shows. There were 76 entries in this class. Mr. C. Anderson, of Cobourg, won the prize. The same gentleman obtained the prize for barley. The Canada Company's prize was awarded to Russell Smith, of Burford, for the best 25 bushels Fall wheat. It was the Blue Stem variety, and weighed 64¼ lbs to the bushel. The Association's prize of £10 was carried off by S. Scott, of Clarke. His wheat was the *Soule* variety, and a beautiful sample. It was not quite so heavy as Mr. Smith's, and this, we suppose, determined the question in favour of the latter. There were 18 entries for the Canada Company's prize, but we did not observe half that number on the ground. Mr. Smith also obtained the first prize for white oats. They were very heavy, but we did not learn the exact weight. The show of pease was very good; but in seeds, roots, &c., there was a great falling off, owing to the season, which has been generally unfavourable to root crops. Potatoes seem to have suffered less from drouth in the neighbourhood of Kingston than in this vicinity.

Fruits, &c.—These were exhibited to great advantage in the Crystal Palace, and made a fair show. The specimens were not generally large, but appeared to be choice. Judge Campbell of Niagara made a most creditable display of peaches. He seems, from the number of varieties exhibited, to have given great attention to their cultivation, and to have met with success. Baron de Longueiul was also an extensive exhibitor in garden vegetables and fruits. J. Cameron, of Brockville, was also a successful exhibitor. The best show of grapes was made by Mr. Lunn, of Montreal. Mr. Fleming, of Toronto, made a good display in this department. The Montreal Horticultural Society contributed some excellent specimens; indeed, but for the contributions from Montreal, the show in this department would have been very meagre. We must not omit the name of Mr. Humphreys, of this city, who carried several prizes for garden vegetables. His cabbage and cauliflower were first-rate.

Dairy Products.—The show of butter was superior to that of any former Exhibition we have attended. Of firkins there were 35 entries; and of samples less than 20 lbs. there were 50 entries. G. Gardiner, of Leeds, took the highest prize for the first, and N. Lapham, of Ernesttown, for the smaller quantity. R. Wade, jun., was awarded the first prize for Stilton cheese. The quantity of cheese exhibited was small. Honey made a tempting show.

Implements.—The display of implements was, upon the whole, a poor one. A few

excellent machines were exhibited; but, except in ploughs and combined reapers and mowers, there was little competition. There was but one large threshing machine. It was from the establishment of Massey & Co., Newcastle, and was most complete in all its parts, and admirably finished. The contest for the first prize offered to reapers and mowers, combined, was between Mr. Massey, Messrs. Patterson, Belleville, and Walton & Co., Holland Landing. The same parties had also entered their machines for the President's prize of £15, offered for the best labor-saving Implement. The machines were all of the same kind or pattern, being copies of Manny's patent. The first prize was awarded to Messrs. Patterson, of Belleville, though some doubt was expressed by the Judges as to the advantage of a castor-wheel placed under the tongue, but as this could be removed if found in the way, and the machine being in other respects better made, it won the prize. It was also awarded the President's prize as the best labor-saving implement. Mr. McDougall, foreman of the jury of judges, was anxious to defer the award of this prize until a trial of these implements could be had, but he was over-ruled, the other judges being unwilling to incur the trouble. The second prize in this class was awarded to Walton & Co. Messrs. Johnston, of Toronto Township, obtained the prize for the best Reaper. It was a copy of Seymour & Morgan's Machine, with several improvements, and was well made. There was greater competition in ploughs than in any other class. The jury was anxious to see them tried, and a field was procured for the purpose. Two iron ploughs, both from Montreal, and six or seven wooden ones, were tested with an instrument. The soil was about the worst that could be chosen for such a purpose, but it was the best in the neighbourhood. The jury, however, went at it with a will, and endeavoured to give all the competitors an equal chance. They noted the depth, width, and shape of furrow, the amount of traction, and the angle, &c., at which the furrow-slice was deposited. These data, together with the strength and durability of construction, guided the judges in making their award. They gave the 1st prize to Mr. Modeland, of Brampton, the 2d to Mr. Bingham, of Norwich, and the 3d to Mr. McSherry, of St Davids. Between the two last it was difficult to decide. Bingham's was lighter in draft, and being well handled, made a little better work.

We have not space in this Number to notice some other implements that deserve it at our hands, but will endeavour to remember them in a future Number. The remaining departments of the Exhibition must be deferred for the same reason. The official and corrected Prize List will appear next month. The lists published in the newspapers are necessarily imperfect, but they will gratify exhibitors and their friends in the meantime.

The following report of the proceedings of the Association is all we can find room for in this Number. The President's Address and the Prize List will be published in the November issue.

THE ANNUAL MEETING.

The Annual Meeting of the Agricultural Association of Upper Canada took place on the grounds, at 10 o'clock. The President, Baron de Longueil, in the chair.

The following delegates from County Associations were present:—

Kent, Alex. Millar. Joseph Smith; Huron, Charles Girven; Grey, Samuel Broadfoot, Archibald Sherratt; Bruce, W. Withers, W. Millar; Wellington, F. W. Stone, John Iles; Middlesex, Wm. Bothwell, Samuel Peters; Elgin, George Henry, Arthur Smith; Oxford, Adam Dodge, C. Place; Brant, Charles S. Perley, Charles Whitlaw; Haldimand; Charles Bain; Norfolk, Oliver Blake; Welland, John Ratcliffe, John Kerr; Lincoln, Judge Campbell, John Simpson; Wentworth, Thomas Stock, Hamilton O'Reilly; Halton, Samuel Clark, David Springer; York, Robert Davis, William McDougall; Ontario, Ebenezer Birrell; Durham, Matthew Jones, Richard Allan; Northumberland, P. R. Wright; Victoria, John Gibb, Samuel Wetherall; Peterborough, John Walton; Prince Edward, David Conger, J. P. Roblin; Hastings, B. F. Davy, Thomas Perley; Lennox, Alexander Campbell, John Hawley; Addington, John Hitchens, Dr. Ashton; Frontenac, William Fergusson, John Flanaghan; Leeds, Dr. Richmond, J. W. Hough; Lanark, Robert

Young, Wm. Wallace; Prescott, Chas. Hersey, S. M. Cushman; Russell, William Edwards; Glengary, Daniel Campbell, D. A. McPherson; Stormont, David Tate; Dundas, Charles Rundle.

A discussion arose as to the reception of W. H. Sweetman, and Dr. E. J. Barker as delegates from Renfrew, who had been appointed on the ground. It was finally resolved by a considerable majority that they should not be received.

Col. Marks then moved that Geo. Alexander, Esq., Woodstock, be President of the Agricultural Association for next year.

Seconded by T. C. Street, Esq, and carried unanimously.

Mr. Alexander briefly returned thanks for the honor which had been conferred on him.

Moved by Mr. Burnham, seconded by Dr. Ashton, that D. B. Stevenson, Esq, M.P.P., be first Vice-President of the Association for next year.

Carried unanimously.

R. L. Denison, Esq, moved that William Ferguson, Esq., be second Vice-President, and in doing so passed a high elogium on Mr. Ferguson's exertions, in connection with the present Exhibition, especially assigning him the credit of the Crystal Palace, one of the main features of the Show.

T. C. Street, Esq., seconded the nomination, and said he considered Mr. Ferguson's merits were such as should secure for him the suffrages of western delegates, as well as of those from the east.

O. Blake, Esq., moved that Charles Whitlaw, Esq., of Paris, county of Brant, be the second Vice-President, and commended him as a gentleman who took great interest in the progress of agriculture, and as one qualified to fill the office with credit so himself, and advantage to the Association.

Geo. Henry, Esq., seconded Mr. Whitlaw's nomination.

A division being taken, Mr. Ferguson had a majority of votes, and returned thanks for the honor conferred on him.

Mr. Blake moved the re-appointment of R. L. Denison, Esq., as Treasurer.

Col. Marks seconded the nomination, in a few complimentary remarks on the ability and integrity with which Mr. Denison had always discharged the duties of his office.

Carried unanimously.

Mr. Denison briefly expressed his sense of this renewed evidence of the confidence reposed in him by the Association.

Mr. Alexander moved, seconded by Mr. O'Reilly, that the thanks of this meeting be given to the Local Committee of Kingston for the liberal and satisfactory manner in which they have afforded accommodation for the present Exhibition.

Carried unanimously.

Col. Marks returned thanks on behalf of the Local Committee, and said the chief merit was due to its most active member, Mr. Ferguson.

Baron de Longueil could not allow Col. Marks to sit down, without saying that that gentleman himself had been one of the most efficient in getting up the present Exhibition.

Moved by Mr. P. R. Wright, seconded by Judge Campbell, that the thanks of the meeting be given to the Mayor and Corporation of Kingston, the Municipal Council of the United Counties of Lennox, Frontenac, and Addington, and such other bodies as have contributed to the funds of the Association.

Baron de Longueil, in putting the resolution from the chair, called attention to the handsome conduct of Hastings in forwarding £100, and Leeds and Grenville £75, to defray the expenses of building.—Carried unanimously.

After thanks had been moved to Judges &c., Judge Campbell, of Niagara, moved that the next Annual Provincial Fair be held somewhere on the Niagara frontier. In doing so, he alluded to the success which had attended the previous fair held at Niagara, the liberality with which the district would contribute the means necessary to make the Show successful, the easiness of access from the States, and the facilities of communication with other parts of the Province, by land and water. He also urged that it was now Niagara's turn by regular rotation to have next year's Show assigned to it.

T. C. Street, Esq., seconded the motion, and also briefly advocated the claims of the Niagara frontier.

John Gibes, Esq., moved an amendment that the Exhibition of 1857 be held in the town of Brantford.

C. Whitlaw, Esq, seconded the amendment. He stated that Brantford, before the time for holding the Show came round, would be the centre of a complete system of rail-

roads. The Buffalo and Lake Huron line would bring visitors from the States. The Great Western also communicated with the States at the Suspension Bridge. The Grand Trunk too would be available; and the line from Godrich to Paris would allow a section of country to be represented at the Exhibition, which had never hitherto been, from the want of facilities of transit. Ample accommodation, too, for any number of strangers, could be provided in Brantford, and, within an easy distance by rail, in Paris, Hamilton, &c. And there was another consideration. At every Fair, it was found that the bulk of the stock and and articles exhibited was from the immediately surrounding district, and he considered they had sufficient evidence even here of what the district around Brantford could do. Mr. Russell Smith, of Burford, a resident in Brant county, had taken the Canada Company's prize for wheat, and also the first prize for oats. They could show there, too, the best specimens of stock; the gentleman who had taken the prize for the best Durham bull, being a resident within half a mile of Paris.

Mr. Clarke, Halton, Mr. Perley, and Mr. George Henry, also advocated the claims of Brantford.

A vote was then taken and resulted in Brantford being carried by a large majority.

The gentlemen from the district stated that Brantford would contribute £1,000 towards the expenses of the next Exhibition.

Mr. Alexander brought before the Association the propriety of passing a resolution that in future the Fairs should be held alternately east and west of Toronto.

After some discussion it seemed to be the general impression that the matter should be referred to the County Societies, and their opinion taken on the point at the same time that they were asked to make suggestions for improvements in the Agricultural Statute.

It was then agreed that the next Fair should commence on the last Tuesday of September, 1857.

A vote of thanks was carried by acclamation to the retiring President, Baron de Longueuil, for the able manner in which he had discharged the duties of the office.

Baron de Longueuil, briefly acknowledged the compliment, and said he esteemed it a higher honor to be President of the Agricultural Association of Upper Canada, than to be President of the Executive Council. (Hear, hear, and laughter.) For, in occupying that position, he felt he was sustained by the suffrages of the entire Agricultural community. (Hear, hear.)

The meeting then separated.

At 2 o'clock Baron de Longueuil, as the retiring President, delivered the Annual Address to a large audience on the grounds. On motion of Col. Thomson, the thanks of the Association were given to the Baron for his interesting and able Address. The Prize List was then read by Professor Buckland, and afterwards the Prize Cattle were marched in procession round the grounds, and the eleventh Provincial Exhibition of Upper Canada terminated.

An Infallible Recipe.—At this season, when dysentery becomes very prevalent, we can recommend the following means of curing the same, which are within the reach of every person at almost every hour:—Take one tablespoonful of common salt and mix it with two tablespoonsful of vinegar, and pour upon it a half pint of water, either hot or cold—only let it be taken cool. A wineglassful of this mixture in the above proportions, taken every half hour, will be found quite efficacious in curing desentery. If the stomach be nauseated, a wine glass full every hour will suffice. For a child, the quantity should be a teaspoonful of salt and one of vinegar, in a teacupful of water.

For all diseases man is heir to, nature's remedies are simple and sure, and there is no evil in the world without its antidote. We could mention numerous instances in which the above receipe was found effective in the cure of dysentery.

The way to Tether a Cow so that she will not be liable to Injury.—Take a tough light pole, ten or twelve feet long, to a blacksmith, and let him bend over each end and rivet fast a hoop of iron and insert into it a swivel ring. Attach a chain with a strap to the cow's horns, of sufficient length to reach the ground when the animal stands up; this lower end to be attached to the swivel on the pole. Fasten to the other end of the pole a chain of any suitable lenghth, with its free end, armed with its wedge-shaped piece of iron 18 inches long, to be driven into the ground with a billet of wood, and your cow can thus be tethered without any danger of entanglement, whilst the pasture will feed one third more,—fences dispensed with, and shrubbery not broken, by being run into when the animal is frantic with flies.

PROFESSOR BUCKLAND'S TOUR IN THE COUNTY OF WELLAND.

To E. W. Thomson, Esq., President of the Board of Agriculture of Upper Canada.

Sir,—I have much pleasure in transmitting to you for the information of the Board of Agriculture, some account of my recent visit to the County of Welland, where I spent a very agreeable week. I was the guest of Captain Radcliffe, the respected and indefatigable President of the County Agricultural Society, who kindly conducted me through the county, and introduced me to many of the principal agriculturalists and leading professional and commercial men. My notice of many things must necessarily be very brief, and others must be allowed to pass without even an allusion.

On Friday, June 20th, I left Toronto by the Great Western for Thorold, where I was met by my good friend Capt. Radcliffe. Thorold is evidently a rising place, and situated on the escarpment of lime and sand stone, which on the South-western shore of Lake Ontario, forms a very striking physical feature. Its close proximity to that magnificent work, the Welland Canal affords it many important advantages. Mr. John Morley is doing here a rather extensive business in the manufacture of agricultural implements. His ploughs, constructed on the Scotch-swing principle, are much approved of in the country. They are made of iron or wood, the latter being more common, and are getting into general use. I saw some good work done by them in several places.

Next day we drove through the northern portion of the township of Thorold, and called on several farmers. Mr. Wm. Ash, in what is called the Beaver-Dam settlement, has some of the most approved modern implements, and his cultivation seems good, and as a consequence his crops were generally heavy. Grade cows excellent, with a large dash of improved Durham blood, indicating the advantages where a breed of pure-blooded animals are not kept, of crossing our best native cows with that world-renowned breed. Mr. Ash has a flock of Leicester and Down sheep, well bred and in a thriving condition. I observed an English thorn hedge, which appeared to be thriving. Mr. Russell has also a hedge of considerable extent, a portion consisting of American Thorn in a very growing state, the rest is made of the locust, which is inferior. These hedges did not appear to have suffered from the depredations of mice, which have proved so disastrous to young fruit trees in particular, during the peculiarly inclement season of last winter the subject of live hedges is beginning to engage the attention of farmers in this country, as well as in others of early settlement. As yet experience in this matter, which is in many places becoming every year of more pressing importance, has not been sufficiently extended to lead to positive conclusions as to what particular materials are the best for making live fences. Although I have seen a few instances of the ordinary English hawthorn looking healthy and promising, yet I am strongly inclined to the opinion, from all that I have observed and heard, that our own native thorn, when properly treated, will answer better. Hedges, like fruit trees, or the ordinary crops of the farm, require, and will amply repay for all the rational treatment and care that can be bestowed upon them. We afterwards called on the Rev. Dr. Fuller, who, like many clergymen in the mother country, takes a lively interest in rural pursuits, and has labored to extend the knowledge and improve the education of farmers. Mr. Fuller does not now farm extensively. He has some excellently bred carriage horses. Clover very heavy on strong clay soil. In the evening I met and addressed a small number of farmers, and a few others, in the village of Allanburgh, and afterwards spent an agreeable hour in conversation on various matters pertaining to agricultural improvement, in which Messrs Wright, Colman and McCoppin took the principal part. I learnt both here and elsewhere in the country, that the practice of sowing timothy seed with wheat in the fall, was yearly extending with

satisfactory results; the plant coming to earlier maturity. In a wet harvest—which however we are not often troubled with in this country—the timothy grass must tend to interfere with the harvesting of the grain.

On Monday, June 23, we went over a large portion of the township of Stamford. Inspected the farms of Mr. Edward Jones who has long been distinguished as an enterprising and successful farmer and breeder. Mr. Jones's farm occupies an elevated portion of the ridge already referred to; it is consequently broken, and consists mainly of a heavy clay soil, which changes to a loam immediately to the east. The grain and root crops, clover and pasture, were good, considering the dryness of the season. The live stock consists of some well bred horses, strong and active, and specially suited to heavy soils. Excellent Grade cows, yielding large quantities of milk, several from Durham, with a Bull above ordinary merit: several of the cows and heifers are excellent specimens of that celebrated breed, which Mr. Jones has been very successful in introducing into that section of country. His South-Down sheep are, many of them, particularly fine, yielding a fleece of 3½ lbs.; none of the best are ever sold to the butcher. From the most casual observation it is evident that Mr. Jones is no friend of weeds. The difference in the state and appearance of the crops at this season between such as cultivate thoroughly, and those who merely skim over the surface in a hurried and imperfect manner is astonishingly great. Clean and thorough culture is the only kind of farming that in the long run can pay.

Mr. Wm. McMicking, near Queenston Heights, has likewise an excellent head of Grade Cattle, in fine condition. Such stock probably pays better than any other, not excepting even the pure breeds, as a general thing; and it is within the reach of almost every person to obtain it. Mr. McMicking has also a few good Durhams, and a Hereford Bull and two cows, of promising appearance. There are not perhaps a dozen of the latter breed in Upper Canada, and the few specimens I have seen in the United States, would be considered in that portion of England where this breed is cultivated and appreciated, as second rate animals. Although it would be idle to suppose that this breed can supplant the Short-horns—which are unrivalled for size and early maturity, yet it is highly desirable that it should be better known on this side of the Atlantic. I saw some excellent Pigs—Suffolk and Berkshire breeds, at Mr. John Lemon's, who has likewise some fine Leicester sheep, and a heavy crop of two-rowed barley.

At Mr. Ker's, Drummondville, I found quite a number of people assembled to witness a trial of mowing machines. The clover was heavy with but little timothy, and in some places it was much lodged, and consequently difficult to cut in any way. The two principal machines were constructed on Manny's principle, a combined reaper and mower, the one made by Fanlett of Niagara, worked better on the whole than Manny's own, particularly in avoiding choking in turning. Manny's machines are fast getting into general request; and mechanical skill has done wonders within the last year or two in surmounting what were thought to be insuperable difficulties in the way of constructing a combined Reaper and Mower. Mr. Ker's farm, like much of this eastern side of Stamford, is of a light sandy character, yet highly productive in favorable seasons; his cattle and sheep are good.

In the evening I met a large party, chiefly agriculturalists of the neighborhood, in the pretty village of Drummondville, and addressed them on the application of scientific facts and principles to the practical management of the farm, and other means of agricultural improvement. The evening was spent very agreeably; and upwards of an hour was devoted to asking questions and giving replies to subjects suggested by the lecturer. Messrs Lemon, Jones, McMicking, Gardner, and my friend Capt. Radcliffe, were among

those who took a part in the discussion. Altogether the meeting went off well. Mr. Isaac Culp of this village, who has been a plough maker for many years, and who obtained diplomas and premiums at our early Provincial Exhibitions, produced a model of an improved plough, which he is about to bring before the public.

On Tuesday we started for Fort Erie, where I had an engagement to lecture in the evening. From the Falls we travelled several miles along the banks of the river, saw but little good farming, the soil is a heavy clay, needing much deeper and cleaner cultivation, and in many places draining, the essential conditions of all subsequent improvements, and which appears to have been very little attended to in this section. We called on Mr. Weeks, in Bertie, whose farm principally rests on a limestone gravel, his crops looked promising; he has some excellent grade cattle, and a pure Durham Bull. Mr. Rooth, of Split-rock farm, so called from an extensive fissure in the limestone on which it rests, has good stock, and his cultivation and crops appeared above the average. Leaving the limestone we entered again on heavy clay; the land is naturally of good quality, but it much needs draining and better cultivation. Mr. Graham has a splendid farm on the Garrison Road, under superior management.

In the evening I addressed a good audience at Fort Erie, and a lengthened conversation subseqently followed, on several points of improved husbandry, and the management of Agricultural Societies, in which Messrs Lewis, Graham, Richey, Henderson and Dr. Cronyn took a principal part.

Next morning we proceeded up the Garrison Road to Ridgway, the soil becomes lighter, and the country more picturesque. Mr. Haun has a good farm here, pleasantly situated, and commanding a view of Lake Erie, and the State of New York. I noticed two very fine fields of grain, barley and wheat; of the latter, appearance would justify the expectation of 40 bushels per acre. We passed through a large portion of Humberstone; some parts of which are not very interesting, and arrived at Stone Bridge and Port Colborne, at the head of the Canal, on Lake Erie. A great amount of business is done here, and the number of vessels—some of them of large tonnage, that pass up and down the Canal is rapidly increasing. Dobie and Henderson, of Stone Bridge have established a manufactory for making ploughs and other agricultural implements, and their establishment is fast growing into notice. Wilkinson & Roote of St. Johns, manufacture Gang Ploughs, an article that is preferred by some to the Wheel Cultivator. This form of plough deserves to be better known. I regret that we had but little opportunity of seeing the township of Wainefleet, where extensive marshes prevail, and I am informed a stoned drainage has been successfully commenced. In the evening I met a small party at Merrittville, the county town. The meeting was held in a room of the new Court House, an extensive and handsome building of stone, not yet completed, after the address Messrs Burgar, Rice, C. Park, Dr. Burns, and others, took part in the conversation.

Next morning my worthy guide conducted me to Pelham, making a gradual and in some places rapid ascent from the plains to lighter and drier soils, which require a different mode of management. On our way we called and inspected the nursery and farm of Mr. Samuel Taylor, who has a pretty extensive stock of fruit and ornamental trees; many of which seemed healthy and flourishing, although the mice and severe frost of last winter had done great injury. Great numbers of peach and plum trees were wholly or partially destroyed. Mr. Taylor is trying a considerale length of Osage Orange hedge, which so far appears promising; and Mr. Lewis Wilson is doing the same with similar prospects. There are extensive Pine ridges in these elevated parts of Pelham; in many places the soil is poor and light, and agriculture, as a system, can scarcely be said to have commenced. In other places, however, the soil is highly productive, and this section is

celebrated for producing the finest quality of potatoes. Mr. J. Price cultivates liberally, and his crops were consequently heavy. I regretted we did not find Mr. John Scofield, a leading and enterprising farmer at home. I met a number of agriculturalists in the evening, and after my usual address, a very spirited conversation or rather discussion was carried on, in which Messrs Sheriff, Hobson, Deverardo, Schofield, H. Price, and my kind conductor, Capt. Radcliffe took part. Here my engagements terminated.

Upon the whole I have been highly gratified with this trip, which has afforded me good opportunities of getting valuable information, and of offering suggestions and communicating knowledge respecting the science and practice of agriculture and the management of Societies, which I trust, will prove useful. The county has been recently made independent, and a fresh energy seems now to animate the people. Everywhere I found an interest expressed in the proceedings of the Board and the Provincial Association, and exertions were being made towards securing the Provincial Exhibition somewhere on the Niagara frontier, at an early date. The stoppage of the Buffalo and Brantford Railway has been a great drawback to this county, but this impediment will be speedily removed. The Canal and the Railway afford efficient means for developing the resources of the county. I observed great improvements going on in several places in road making; a matter which hitherto has not received the attention its importance deserves. The most striking deficiency in the practical husbandry of this county, as well as many others, is the small amount of land devoted to root crops; particularly the mangel-wurzel and field carrot, productions so essential to the sustentition of a numerous and improved herd of Cattle. Draining too on the flat clay lands has as yet been but little attended to. When this is done, the various kinds of root crops may be profitably introduced on soils when under present circumstances the attempt would be abortive.

I am under great obligations to Capt. Radcliffe for his attention and hospitaity. And here I would mention that I saw some excellent silk, from worms which Mrs. Radcliffe has in her possession, and to which she has devoted much time and attention. It is quite a curiosity, and with the thriving mulberries in the garden shows what our soil and climate can produce.

Hoping that this brief and hurried sketch will not be totally unacceptable to the Board.

I have the honor to be, Sir,

Your obedient Servant,

Toronto, Sept., 1856. GEO. BUCKLAND.

CURING BACON WITHOUT SMOKE.

"Oh the trouble folks have taken
To smoke and spoil their bacon."

To smoke the best bacon, fat you hogs early and fat them well. By fattening early you make a great saving in food, and well fattened pork. Then kill as early as the weather will allow, and salt as soon as the animal heat is gone, with plenty of the purest salt, and about half an ounce of saltpetre to one hundred pounds of pork.

As soon as the meat is salted to your taste, which will generally be in about five weeks, take it out, and if any of it has been covered with brine, let it drain a little. Then take black pepper, finely ground, and dust on the hock end as much as will stick, then hang it up in good, clean, dry, airy place. If all this is done as it should be, (it ought to be done now,) you will have no further trouble with it, for by fly time in spring, your bacon is so well cured on the outside, that flies or bugs will not disturb it.

Curing bacon is like the Irishman's mode of making punch. He said:—put in the sugar, then fill it up with whiskey, and every drop of water you put in after that spoils the punch. Just so with curing bacon, after following the directions given above, every "drop" of smoke you put about it, spoils the bacon.

A NEW MILKING MACHINE.

Among the many uses to which India Rubber has been applied, is that of milking. Two or three years ago a milking machine was brought before the public which without the aid of the hand, accomplished the operation. It was composed of India Rubber, and was attached to one teat at a time. We believe it was not found of much use in practice. Another invention is now introduced to public notice, which operates on a somewhat different principle. Whether it will prove of greater value than its predecessor remains to be seen. We fear that an air-tight pail, with an air-pump attachment is not likely to continue in working order very long in the hands of ordinary dairy-maids. This air-tight invention is by Mr. Kingman, of Dover, N. H.; U. S. He comes out with a very clear description of it in the New England *Farmer* and says it works "first rate." He takes a calf for his model, and manufactures a machine calf, with four mouths, and sets him to sucking—substituting a pail for the calf's stomach—but we will let him tell his story as we find it in the New England *Farmer*:—

"In the first place, I take a large size pail, either of tin or wood, and fit on it a cover so as to make it air-tight; then I construct a small pump in some compact form, so as to exhaust the air from the pail. The pump made for my experiments (and which is described in the application for a patent) is a part of the cover to the pail, and being flat and thin, works rapidly and without friction, and does not wear so as to leak. It is only necessary to produce a slight vacuum, such as a calf might make with his mouth. I then connect four small rubber tubes, about eighteen inches long, with the top of the pail; and on the other end of each of these tubes, I fix a little cup of tin, glass or any other convenient material, about two inches in diameter and three inches deep. Over the top of each of these cups is drawn a cap of thin, flexible rubber, having a sack or mouth in the centre, of sufficient size to receive the end of the cow's teat, with a small hole in the bottom for the milk to pass through. The cap fits to the top of the cup, air-tight, by its own contraction, and also hangs around the end of the teat, but by its flexibility permits a free flow of milk into the cup and and through the rubber tube into the pail.

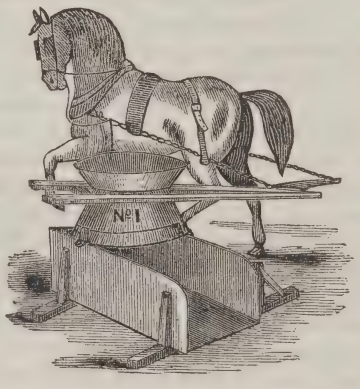
Having got the machine in readiness, I slip each of the cow's teats into one of the soft, flexible sacks or mouths, which can be done in an instant with the end of the thumb—the rubber clings around the teats and holds the cups in place. I then commence pumping slowly and easily, and the milk flows in a large, steady stream from each teat, through the tube into the pail. The cow meantime, is quietly chewing her cud, hardly knowing hat anything is going on; so perfectly is the teat sustained by the rubber suck, that the suction hardly affects it all, and there is no pulling, or flinching, or squeezing in any direction. All the while the milk is flowing at the rate of about two quarts per minute; at any rate, I have milked eight quarts of milk from my cow in four minutes, with a machine by no means perfect; because being the first and only one ever made, and got up only to experiment with, it has suggested improvements which will be embodied here, after; and I am entirely satisfied that a child or woman can milk with this machine with perfect ease, faster than four milkers, either men or women, can milk by hand.

But the chiefest recommendation of the machine remains to be mentioned. The common method of milking by hand necessarilly exposes the milk to more or less dust, dripping from the hands, and other kinds of filth, which often spoil its taste, and always gives one the idea that he is swallowing a disagreeable amount of unmentionable materials. Even the best and most careful milkers cannot avoid getting something into the pail that should not go there; this is proved by the universal custom of straining milk immediately after milking, in all cases, and by whomsoever it may have been milked.

But straining will not take out the drippings from the hands of careless, filthy milkers; and the result is, a very general complaint among consumers of the bad taste of milk, too often attributed to the adulteration or dishonesty of milkmen.

This machine, however, entirely obviates this unpleasant difficulty. The milk is drawn directly from the udder into a covered, air-tight pail, where no dust or drippings or filth can fall itself, or be thrown by carelessness. The Irish girls cannot dip their hands into the pail to moisten the teats, as is their common practice, nor can the cow step into the pail, or kick it over, so as to spill the milk.

In short, I think the *milking machine* will be a great labor-saving improvement for the agricultural community, and a genuine comfort to both the cows and the consumer. Immediate efforts will be made, after obtaining a patent, to introduce the machine to the notice of the public, and to supply the market demand for them. It is not possibe at present to say at what price they can be afforded, but probably they will not cost far from five dollars a piece."



CORN AND COB CRUSHER.

This useful machine was exhibited at Kingston, by Mr. A. Millar, of Chatham, C. W., and was submitted to the inspection of the Judges while in operation. It grinds both corn and cob sufficiently fine for feeding, and with considerable speed. There can be little doubt that it is good economy to prepare food in this way for stock. The amount of nutritive material in the cob may not be great, but we believe experiment has demonstrated the utility of mixing it with the more concentrated food which is supplied by the grain. This "Crusher" answers equally well for pease and other coarse grain, and for fatting hogs will be found very useful and economical.

We are glad to find that these mills, which have become very popular in the States, are now being manufactured in Canada. The reader will see by an advertisement in this number, that they may be ordered at any of the principal cities on the line of the Great Western Railway.

QUALITY OF LANDS ON THE MADAWASKA, &c.

It may be of interest to some of our readers to learn the situation and quality of the Government Lands offered for settlement north of the Counties of Addington, Hastings, &c. Contradictory statements are abroad, and it is therefore the more important to ascertain the real facts, and to make them known. The statements of the Minister of Agriculture will be found on our advertising sheet, but the following remarks on the character of the land on the Addington Road are from the pen of Mr. Perry, the Government Agent, who has traversed the country of which he speaks. His remarks are in answer to the following questions submitted by a friend who wished to make use of the information in a publication he is preparing:—

QUESTIONS.

1st.—Are the lands in the Back Country of Addington and Frontenac, of a quality to reward the Agriculturist for his labors?

2nd.—Are not the lands so broken by the granite hills as to isolate the Settlers, and thus mar the social interchanges of life?

3rd.—What chance has the Settlement in getting supplies, and which is the best road to the land?

4th.—How and where will settlers dispose of their surplus if they have any?

5th.—What is the probable future of the Settlement?

To question 1st.—"Are the lands in the Back Country of a quality to reward the Agriculturalist for his labors?"

In my opinion they are. The soil is a sandy loam, more or less covered with vegetable mould. It is made up of the decomposed granite hills that crop out at stated intervals all over the back regions. The silica of those rocks is crumbled to atoms by the agency of the acids contained in rain and snow water—by the solvents in atmospheric air—and by the aid of a little obstrusive plant called litchen which thrives in our driest weather on the bare granite, and without seeming effort, by the action of its root detaches small particles, and deposits them at the base of the rocks in debris. Thus in my opinion, the soil is made up of the silica or sand of the surrounding rocks. There is a feature in the growth of the timber on the lands in question, in connection with the fertility of the soil, that I do not understand. Where hard wood predominates, the soil is a dark loamy sand; where pine takes the lead, a pale yellow sand is found. The whole drift has one common origin. The yellow sand bears by far the most lofty and gigantic trees; some having yielded to the lumbermen seven thirteen feet logs, the lumber of which was fit for the American market; and one stump which I measured and found it to be five feet two inches across, not including the bark; and yet the yellow sand gives a much less yield of grain to the farmer. Where dark loams have had a fair trial, the yield has been equal to the most favored soils of the frontier Townships—wheat, rye, oats, peas, barley and Indian corn, all flourish; potatoes and other bulbus roots exceed the growth in older Townships. I have in no instance seen clover tried, but am of opinion that at no distant day, if attention is turned towards it, that clover seed will be one of the staples of this section of the country.

The next or second question asked—Is not the land so broken by the granite hills as to isolate the settlers, and thus mar the social interchange of life? I think that if I say no to this question, I shall be fully borne out by facts; the granite ranges run nearly east and west and consequently the valleys that lie between here and the Madawaska; the first and largest valley is found beyond the rocky range, or fourteen miles north of the river Clare. This range of rocks, over which the Addington road runs by winding through its gulches, is nearly a barren waste; then you come on land that is not fit for settlement; it is about five miles from where the rocky range loses itself, to the rear of Kaladar; about six miles of the road lots are entered for settlement, making a distance of eleven miles across the valley, that in all probability will be settled. Nor is this all; many lots beyond those taken, afforded a sufficient amount of plough land to ensure their settlement before you come to the next broken range, which occurs at the head of the

Massenoga Lake; and even there some redeeming qualities are found. You remember that I said the valleys run east and west, so a large settlement will find its way in there ere long. I do not wish to be understood to say, that all the area here spoken of, is fit for cultivation; there is too much broken land abounding through this district to suit me, but I wish to say that the Township of Kaladar has a fair portion of excellent land —that of Barrie, Denbigh and Asbley will be, when cleared and tilled, equal in quality of plough land, in proportion to their area after deducting the water, to either Camden or Earnestown. Anglesea, Abenger, and Effingham are more broken. After you leave the head of the Massenoga Lake, the road passes over a rough range of rocky ground covered with fine groves of pine interspersed with patches of hard-wood land, are sufficiently numerous to induce settlers to occupy probably the road line through this range; but as you approach the Madawaska river, as large in appearance as the Trent, you pass a rich rolling country watered with the purest springs, whose tiny brooks are filled with speckled trout, and whose hills are clothed with red beech, that have innumerable marks of bears' claws, that ascend and descend them annually for the Mast. If you ascend a high hill that skirts this valley at whose base the road runs, you would see down on both sides of the river the pale green foliage of the hard-wood in strong contrast with the deeper tints of the evergreens. The hard-wood land on this side occupies seven or eight miles in width and to all appearance is as wide as the other side of the river.

The 3rd question is, "What chance has the Settlement in getting in supplies, and which is the best road to the land? There are two ways for Settlers to approach the lands, and supplies can be got by either. First up the Madawaska from Bytown and Perth—this is but a winter road, and cannot be travelled until frost sets in and bridges the lakes and rivers; by this route up to this time, all the provision and provender has been sent to supply the lumbering districts on the Madawaska; and the supplies have to be got in one year before they are used: this route expensive and unsafe as an open winter or a general thaw closes the road; the other is the Addington road itself; this is much the safest, and cheapest and the shortest route, it being about forty miles nigher the bridge over Madawaska, from Kingston than from the city of Ottawa, and the whole of the Addington Road is securely bridged; so that when the snow sets in, the road is available and ere long it will be a summer road as well: the main obstruction at the present time is the first sixteen miles from Clara, on which some forty or fifty men are engaged with bars, picks, barrows, cars, &c., and with the aid of fire and sledges, are battering off the high points of the granite rocks, and filling up the low places, so that in a few weeks both settlers and lumber merchants can receive supplies any day in the year. The best way at present for people at a distance to approach the land is, to take Haye's Stage which starts on the east side of the Market House in Kingston, every Tuesday and Friday, and it will set them down within five miles of the commencement of the Addington Road, but as soon as the cars start, Mr. Hayes intends to run his Stage to Napanee, which then will be the shortest and cheapest route to the lands on the Addington Road. Tamworth, Centreville, Newburgh, and Napanee, all villages through which the stage will pass afford facilities to obtain furnishings for the settlement of shanties.

The 4th question is, How and where will they dispose of their surplus if they have any? Every intelligent man knows that if there be no avenues to dispose of the surplus produce when raised, that it will destroy the energies of any man, however industrious he may be; he will not put forth his physical strength merely to raise grain to rot in the sacks, or perish in his granary. I assure you that this alternative will never take place in my opinion, and if it do, the time is so remote, that this generation need not entertain any fear about the matter not that there is to be no surplus raised, for if its settlers use but common and industrious habits, in the space of three or four years a large surplus must be the consequence; for the rich lands of that region will pay the farmer with no niggardly hand, but the demand will for years overreach the supply, new settlers will be consumers before they are producers; and the vast amount of lumbering all along the Madawaska and its tributaries will require more than the Settlement can yield for years. Last winter a score of sleighs passed daily at the end of the bridge I was helping to build over the Madawaska, loaded with pork, flour, oats, hay and groceries, and I was informed by some of the lumber merchants, that the supplies had hardly commenced going up. There are forty miles of a pine growing country between here and the Madawaska, not cut off; and if two miles per year should be taken, it would last for twenty years yet; and if the supply shall exceed the wants of the lumberers and settlers, the excess can be

converted into beef, mutton and pork and driven to the railroads and pass the frontier markets.

The last question is "the probable future of the Settlement?"

The answer to this in some measure must be like a fancy sketch. The imagination must stretch forward, and predict the future, it must unfold the leaf of fate; and read events that are locked up in the escritoire of time. Sages tell us that we may judge the future by the past; if so, I look forward at no distant day, for an industrious, intelligent and rich population to be spread over the lands of our interior. The first half of the nineteenth century has changed the destiny of the human race; and in no place has its effects been visibly portrayed than in our Province. We are just emerging into manhood, untramelled by customs or manners made venerable by their antiquity. The first settlers in our country had to contend with many obstacles that have no existence now, they had no Roads, nor Mills, nor Mechanics, nor had they any place to apply to for bread for their famishing children, or seed grain, if a crop failed them, nor had they teams to assist them to move the ponderous loads from their new chopped fallows. Yet by incessant toil, perseverance and economy, they prevailed and made homes worthy of themselves. And shall we, the sons of such sires, hesitate to leave the refuse shallow soils that overlay the limestone beds of the frontier townships; and go on in the rich loams of the interior where Government is constructing a good summer road, over a barrier that would have eternally shut out private enterprise. Our fathers plunged into the forest with a scanty stock of provisions on their back, followed by our mothers, with the wardrobe and cooking utensils threading their way by untrodden paths to the place where they intended to plant their vineyard. Contrast the events of their settlement with the facilities that we enjoy; we jog along by steam, we converse by lightning; and think you, that our new Settlement will be debarred the privilege of partaking of the recently developed impetus that impels forward the destinies of the human race, I tell you no! A decade will suffice to reform what formerly consumed a century; in ten years the rich valley of the Madawaska, and the no less rich tufts or valleys that lie scattered among the granite ranges between here and there; will teem with life and the bustle of commerce. The stroke of the axe, the noise of the shuttle, and the ring of the anvil, will comingle with the bellowing of the herds and bleating of the flocks, villages will rise, having churches whose tinned steeples reflect the rays of the morning sun; and as each succeeding Sabbath appears, call forth by the reverberating sounds of their bells amongst the valleys and hills, well dressed youths, the children of the present race, to worship the God of their Fathers.

The Harvest in England.—We copy the following from the *London Agricultural Gazette*:—"We have collected returns of the wheat crop from 207 districts scattered over the United Kingdom, 196 reports of the barley crop, 200 reports of the oat crop, 137 and 112 respectively of beans and peas, and 209 reports of the green crops. Of the wheat, barley and oat harvest reports, 73, 68, and 78 respectively state that the crop to be an average one; 114, 98, and 96 respectively put it at above an average; and 15, 30, and 25 respectively at below an average. We think that taking into account the extent of land under wheat which is undoubtedly much beyond an average, along with the generally favorable opinion of the crop, we may be satisfied that is now as large a quantity of home-grown wheat within the country as there ever yet has been. We quite believe that the yield of wheat will prove an unusually productive one. As to the other crops, we may shortly say that of the returns of the barley crop 30 put it as an average, 98 at over average, and 68 as under average. Of the oat crop reports, 26 put it as average, 96 as over average,and 78 as under average. The acreable produce of the barley crop is thus at least as much above an average—and we believe them both to be unusually good—as that of oats; but to the former must be added the consideration that so few acres of the barley crop probably never have been grown as has been the case this year. The pulse crops are generally good, especially those of peas, and on the green crop returns we may just add that they refer exclusively to turnips, mangel-wurzel, &c., not to grass, and hay, nor to potatoes. They are, generally, it will be seen, unfavorable. As to the hay crop, including the first cut of clover, it has been unprecedently well got, and abundant. The opinions we have had given us of the potato crop are generally favorable. The disease is spoken of in a few places, but by no means generally."

AN EFFECTUAL METHOD FOR POISONING RATS.

Mix together arsenic and any kind of grease, smear the inside holes of egress and regress. The rats if they do not eat the mixture, and they are often too suspicious to venture upon poisoned food, will yet destroy themselves by licking their coats, to remove the impure substance adhering to it, in their passage through their holes, and thus effectually destroy themselves.

This plan was successfully pursued in an old house infested with rats in the old country; in a few weeks time not one of these creatures was to be heard or seen about the place. The granary and barns were also freed in the same simple manner.

Disagreeable as is the odour of the rat and mouse, they are scrupulously attentive to keeping their fur clean from any impurity.

TO RESTORE THE BARK OF TREES THAT HAD BEEN INJURED BY MICE, &c.

Let the ragged and bitten edges of the injured trunk, or branch, be cut neatly and carefully round with a sharp knife, above and below the bare place, so as to present a perfectly smooth edge, then from the branch of a lively free-growing tree, cut a piece of bark, measuring the exact size, as nearly as possible, of the part to be covered; when you have fitted the piece nicely in, so that the edges meet without leaving any vacancy, with a little grafting wax or gum, as pine or cherry gum, smear the cracks so as to cover all the joinings, of which there will be three, bind a strip of cotton or linen cloth round the joined bark, and the work is done. This plan I once saw successfully practised in my father's garden.

If the wound is covered early in spring, the bark thus artificially introduced, will supply the channel of communication that has been cut off, on the principle of the graft and bud system. At any rate the experiment is worth a trial, it is neither difficult nor expensive, and if successful will amply repay the gardener and farmer's trouble.

Oaklands, Rice Lake, Sept., 1856.

Clover for Manure.—The *American Agriculturist* strongly recommends the turning under of crops of clover as a means of fertilizing the soil. It thus answers those who contend that it is simply putting back into the ground a crop grown from it:—"If we take a box of earth containing, say 600 pounds and weigh it carefully, and then sow an ounce of clover seed in it, we can continue to remove successive crops until we have taken off more weight of clover than the entire weight of earth in the box at first; and this too, without adding anything but the purest water. After we have removed this crop, we shall find the box of earth to weigh more than 600 pounds, (its original weight), at least, nearly as much more as the weight of the roots remaining in the contained soil. The clover grown has been derived from the air; and such is the case with all plants. Their principal food comes from the atmosphere, from which it has been extracted by the surface of the leaves."

How to Harvest Corn.—Let the corn remain on the stalk until it is dry and fit for the crib.

Enter the field with horse and waggon, straddle every fifth row, with a man on each side and a boy in the rear. Break off the ears as rapidly as possibly, throwing them into the wagon; this saves carrying or handling over, not being particular about taking off all the husks; secure your corn in any convenient place until winter; a pen of rails will answer. The husks that remain will keep the corn from spoiling in the crib. When you wish to market your corn put it on a floor, thresh with horses, the husks will not be in the way, rake off, run through a mill, and your corn will be bright and clean, and in first-rate condition. Two men and a boy can pick and crib two hundred and fifty bushels of ears in a day.

HAND AND HORSE GRAIN MILL.

The above represents another useful iron mill, which is much used in the States. It will grind grain fine enough for family use. It is also well adapted for what is called "chopping" grain. It is very efficient and durable, and may be driven either by hand or horse power. With the latter it can be made to grind fine about four bushels per hour, and a larger quantity if coarse. When the plates, or grinding surfaces are worn out, they can be replaced at small cost. One of these was exhibited in the foreign department at Kingston, and we presume may be purchased of Mr. Rapeljie & Co., Port Hope.

Are the Weevil all Mildewed?—Our neighbor, John O. Wing, of Winthrop, met us the other day, quite *jubilant* with the idea of a first rate wheat crop another year. John's bump of hope, always large, was particularly animated on this occasion, for while we were deploring the damage done to the present crop, he was rejoicing in it, because of the extra produce that was to come off in 1857, in consequence of our present disasters On enquiring into the grounds of his prophecy, he said that he had examined the wheat in several fields during the wet weather and he found that the wet and drizzly weather which had caused rust and mildew, and shrivelled the wheat, had also brought destruction to the weevill, which he also found shrivelled and mildewed, as well as the wheat. We hope that this is true. We could well dispense with one year's crop, if, by its destruction, we should also be rid of this little great destroyer. May he be everlastingly mildewed.—*Maine Farmer.*

Small Farms.—We desire to impress on the common-sense reasoning of every man, the paramount importance of having no more land in cultivation than can be well cultivated. By no means attempt to manage no more than you can manage well. Be a farmer, not a mere scraper, lazily scratching up sufficient earth to destroy the face of the soil, and throw seed away, or you will always have to scratch hard for a living. But make your farm a source of pride, and it will surely become a source of profit. Make the object to be not to have many, but rich acres.

THE WHEAT-FLY IN PRINCE EDWARD.

To the Editor of the Agriculturist.

Demorestville, September 8th, 1856.

Sir,—In a late number of the *Agriculturist*, you advert to the ravages of the Wheat Midge; and intimate that the farmers in the sections of County where the Midge has done injury, have been remiss in informing the public through your columns, of the extent of such damage, and of the habits of the insect.

I observe, too, that the Minister of Agriculture offers certain premiums for Essays on the nature and habits of the Wheat Midge. A step altogether, in my opinion, in the wrong direction; but such a one as might be expected from a Lawyer, placed at the head of the Agriculture of this Province.

Who will be the Judges of these Essays? The Minister of Agriculture will probably be one, and other gentlemen will probably be selected, able no doubt to judge of the merits of the composition, of the style of the Essays; but who will be, very probably, entirely ignorant of the question at issue. How then can they arrive at a correct conclusion?

You are very right in complaining of the backwardness of farmers in this country, in writing for your paper. But few original communications appear; and not many of them are evidently written by practical farmers. A good reason may be given for this. As a class, we are exceedingly averse to writing; and but few of us in the rural Districts, have ever written for the press. The Midge has done a good deal of damage to the wheat in the County of Prince Edward, for the last six years. It usually appears about the last week in June, and may be seen immediately after sunrise and before sunset, depositing its eggs upon the young kernels of wheat, by inserting an apparatus with which its body terminates between the edges of the chaff. I shall give it no *learned* description. It is a small orange-colored fly, and cannot be mistaken. It deposits its eggs, as far as my observation extends, only when the *wheat is in blossom.*

This wheat-destroyer is moving westward, and will most assuredly spread over Canada and the far West. We can neither prevent its coming, nor drive it away when once amongst us. It will certainly to a great extent diminish the wheat crop; but with such care as farmers may take, I do not anticipate its total destruction. The earliest varieties of wheat, such as the Soule's and Mediterranean, sown early on well-drained land, and situated where there is a free circulation of air, usually escape. On well-drained soils, the wheat plants come forward and head out together: on undrained lands, many of the plants are retarded in their growth, the period in which the field is in blossom, is much prolonged, and the Midge has a much longer time in which to operate. The Midge is very destructive in fields of wheat which are much sheltered by woods or hills, so that there is not a free circulation of air. And I have observed that when high winds prevailed, during the time when the wheat was in blossom, but little mischief was done.

If the Minister of Agriculture would search for an earlier variety of wheat, adapted to our latitude, than what we now have, he would confer a lasting benefit on the farmers of this County.

A Young Farmer.

Yarmouth, September 22, 1856.

MR. MCDOUGALL,

SIR—I see in the *Agriculturist* for September, 1856, a communication from Mr. Wade, of Hamilton Gardens, recommending the sowing of the Fife or Scotch Wheat late, so as to escape the depredations of the wheat midge or weevil. Would you be kind enough to inform me where I could get the wheat described by Mr. Wade. I would have written to him, but I was unacquainted with his P.O. address. We have in this section of country, what is called Fife Wheat; but from my experience I do not think it would answer to sow so late as that described by Mr. Wade, or yield any thing like it. And I am anxious to get some that is good, and if you can assist me in procuring a few bushels, you will confer a favor on

Your obedient servant,

WILLIAM MICHAEL.

[We recommend Mr. Michael to send his order to Mr. Wade, Port Hope, who, if he cannot fill it himself, will no doubt put it in the hands of some person who can. There is very little spring wheat grown near this city, or we would have taken the trouble to select a few bushels for Mr. Michael.]

SOWING PLASTER.

MESSRS. EDITORS.—Can you inform me through the *Co. Gentleman*, if it will pay to sow plaster on light sandy land for wheat, oats, corn, potatoes, and meadow, and which is the best time to sow—at the time of sowing and planting, or after the crops are up and rolled in? Would it not be well to brush the grass land after the plaster is sown? I can get plaster at $1 per bag of 200 lbs.—how much will be best to put on an acre? Will it do to mix the plaster and leached ashes?—WM. LAMBERT.—*Ticonderoga, N. Y.*

Plaster is one of those special manures, which sometimes produce surprising results, and at others no visible effects whatever, without any apparent cause for this difference, but which is doubtless owing to peculiarities in the composition of soils which analysis cannot detect. Its utility can be determined only by actual experiment in the different localities where it is used. Under favorable circumstances we have seen a bushel per acre, double the growth of clover, or add fifteen times its own weight to the crop. It has proved beneficial to corn on light land, but its effects are not usually very apparent. On wheat, oats, and grass crops not clover, it is not often of much value. It is said that if sown in autumn on wheat, its best results will be produced. It is commonly sown after the crops are up, the fall of rain disolving so minute a quantity, and carrying it among the roots of plants. We see no advantage in brushing the grass. Plaster is found to be unnecessary in much larger quantities than a bushel per acre. Ashes may be mixed with it without injury, in any experiment with these two manures.—*Country Gentleman.*

SNOW BREAD.—We find the annexed paragraph in one of our exchanges. It is curious if true:—All persons where snow abounds, are not perhaps aware of the value of the fleecy flakes in making light, delicious and wholesome bread. There is no 'raising in the world so perfectly physiological, as good, fresh, sweet snow: it raises bread or cakes as beautifully as the best of yeast, or the purest acids and alkalies, while it leaves no taint or fermentation, like the former, nor injurious neutral salt, like the latter. Indeed, it raises by supplying atmosphere wherewith to puff the dough, while the other methods only supply carbonic acid gas."

CURRANT DUMPLINGS.—Pick and wash a pound of currants, dry them, and lay them on a plate before the fire. Chop a pound of suet very small and put it into eight spoon-fuls of ginger; now add the currants, and mix all well together; then beat up four eggs with a pint of milk, add this by degrees to the other ingredients, and make it into a light paste; roll it up into balls as large as a turkey's egg, with a little flour; batten them a little and put them into boiling water; move them gently that they may not stick together. Half an hour will boil them.—*Germantown Telegraph.*

WORK FOR THE SEASON.

It is fashionable in Agricultural journals to give once in a while an article with the above heading. We will follow the fashion. It is important too, and we would not omit anything important. These directions moreover, should be adapted to the wants of the reader of each paper. We will try to adapt our remarks to the wants of our's.

1. We would say to all our readers—*kill all the weeds that are ripening on your grounds.* Weeds are enormous feeders, and fast eat up the strength of the soil. Kill them *now* and destroy the seed, and your work next year in the same line will be greatly diminished. On grounds which you wish to make very clean, (we think it will pay everywhere,) pull up the weeds by the roots, being careful not to scatter the seeds, and carry them all to some corner, aud make a pile of them. Let the heap lie, turning it now and then, till next fall, or till one year from next spring. By that time the seeds and roots will have rotted and the whole mass be made into manure. A speedier way and with some of the worst kinds of weeds, the *best* way perhaps is to pull up the weeds, let them dry, and then burn them. If you are careful in gathering them, seeds and all, their destruction in this last way is sure. Spanish needles, or "stick-tights," as they are sometimes called, are very abundant. Docks should be rooted out. Thistles of all kinds should be treated in the same way.

II. *Do as much of your plowing and manuring as possible this fall.* This is good in almost all kinds of soil, as it allows the frost to soften the earth more perfectly, and kills the grubs and worms that hath afflicted us so much of late. But fall plowing and manuring are especially needful in clay soils, because it is so difficult to do the work properly in the spring, on account of the dampness of the ground. When you do your plowing this fall, see that furrows or surface drains are made to let all water run freely off. Follow these directions carefully and you may increase greatly your crops for 1857.

III. For the same reason, we would say, *Spade in a good wheel-barrow load or two of well rotted manure, with two or three shovels full of slacked lime, or old broken plastering* under each of your bearing apple trees. Do it this fall, and the next year may be a bearing year as well as this. By pursuing this course, or one very much like it, Mr. Pell of Pelham, on the Hudson, says he secures fruit from his trees every year. Try it. In spading, observe first, not to spade deep *very* near the tree. The spade will strike the roots and injure them if you do. *Secondly*, stand with your *side* towards the tree, while spading, not with your *face* towards it. By observing this caution you will break far fewer roots. Thirdly, dig as deep as you can when you get away from the tree far enough not to hurt the roots.

IV. *As soon as the leaves fall and the ground is dry enough, set out all the apple trees you wish to set out for next year.* We have frequently recommended transplanting in the fall. We repeat the recommendation now. We refer of course to the apple tree and other hardier trees. The tender trees it is safe to transplant in the spring. The advantages of fall transplanting are, *first*, it saves time, for the soil in the spring is wet. *Second*, the tree becomes firmly fixed by spring. *Third*, the mutilation of the roots and branches retards the growth of the tree in the spring. This is partially avoided by transplaning the fall previous.

Keep the apples picked up under your apple trees every day. Feed all the wormy ones to the pigs, or boil them up for your cattle. Thus you will save the apples, and (what is of more consequence,) prevent the great increase of the "millers," that lay their eggs in the blossom bud of the young fruit in the spring.

VI. *Mark the trees that bear poor fruit, and graft their tops with the best kinds next spring.* It is just as cheap for a tree to bear good fruit as poor fruit, remember this.

VII. *Pick by hand all apples to be kept during the winter.* They should be gathered and placed where they will keep cool and dry. They should not be placed in large heaps. A large airy chamber, or an open space in the barn is a good place to keep them till winter comes. Of course they should not be allowed to freeze; but above the freezing point, the colder they can be kept the better.

VIII. *All the apples you can now sell at good prices, dispose of at once.* But if you cannot sell at good prices now, and have good keeping rooms, keep all durable fruit; it will sell before spring, or in the spring.

CASE HARDENING.

To the enquiries of a subscriber, who signs himself "Young Mechanic," whether a piece of wire say ten inches long, can be made hard, while the other part remains soft as wire usually is? we answer, that it can be done by what is called "case hardening."

By this process, the iron subjected to it is covered with a thin portion of steel, or, it would be more proper to say that a portion of the outside is converted into steel.

If our friend wishes to render, say one-half of his piece of wire, or other iron, harder than the other, all that will be necessary to do will be to plunge one-half into a mixture of materials which will yield or give carbon to the iron, and it will thus become steel, and may be hardened like any steel. As this must be subjected to heat, it would be well to cover over the part required to be kept soft, in order to prevent its oxydizing or being burnt, with a coating of clay or whitewash.

The material generally used for this purpose is a mixture of hornshavings, burnt leather, and sometimes bone-dust. These are put into a sheet iron case, or box, surrounding the piece of wire to be case hardened. A wire is wound around the box or covering—the joints luted over with clay mortar to keep out common air, and the whole subjected to a red heat for some time, according to the size of the thing to be case hardened, say from half an hour to three hours. The box or case may then be opened. If, on examination, the conversion of the outside is not complete, it may be subjected to a second heating.

By a little practice, our young friend will undoubtedly succeed in accomplishing what he desires in this matter.—*Maine Farmer*.

A SELECTION OF TWELVE OF THE MOST ESTIMABLE VARIETIES OF STRAWBERRIES.

Princes' Magnate—P, the largest variety yet produced in our country, rounded, and some berries compressed, scarlet, rich flavor, productive, and highly valuable. A very showy berry for market; and a very remarkable and distinct fruit. Plant extremely hardy and vigorous, with large broad dark-green foliage. The leaves never burn during summer, nor are the plants ever injured by the winter.

Princes' Climax—P, very large, conical, beautiful bright scarlet, a splendid fruit, good flavor, very productive, estimable; plant vigorous, with pale-green foliage.

Imprrial Scarlet—P, second only in size to the two preceding, to which it is rather superior in flavor; the form obtuse, conical, or rounded, scarlet, handsome, and very showy, juicy, and sprightly flavor, firm, and well-suited for market, productive: plant very vigorous, foliage pale green, very large and luxuriant, a remarkable variety, very valuable for the size and beauty of its fruit and for its other qualities. This, and the preceding variety are of larger average size than Hovey's Seedling, and much superior in color and flavor, and consequently better suited for market.

Imperial Crimson—P, large, short cone, or rounded, dark scarlet or crimson, fine color, sweet, fine flavor, productive; a first-rate berry, firm for market. It is nearly as large as McAvoy's Superior, and has the qualities for a market fruit in which that variety is so deficient.

Le Baron—H, early, very large, obtuse cone, dark-scarlet, not showy, sweet, rich, melting, highest flavor of all the large varieties, very productive for one of its sexuality, and continues long in successive bearing; foliage tall, light-green, and very vigorous, a seedling of the Old Swamstone.

Suprema—P, very large, obtuse cone, bright light scarlet, a beautiful berry, juicy, sprightly, moderately sweet, very productive; foliage large and vigorous. A seedling from the Montevides or Chili, and precisely equivalent to obtaining a Pistillate variety from the British Queen.

Rosalind—P, very large, obovate, beautiful light scarlet, moderate, but good flavor, very showy, scarcely firm enough for long carriage to market, very productive; plant vigorous, with large broad foliage.

Eclypse—P, early, large, conical, splendid fruit on long penduncles, and has the remarkable property of ripening all its berries at the same time, bright scarlet, high brilliant color, fine flavor with slight acidity. It is one of the greatest bearers of all

strawberries; and a full and profuse crop may be earlier supplied for the market from this variety, than from any other: plant vigorous, with large foliage. A very striking and remarkable variety.

Ladies' Pine—P, medium size, perfectly round, beautiful light scarlet, very sweet, highest and most exquisite flavor, productive; foliage dark-green, as if varnished, vigorous growth, with large fruit stems. This most estimable fruit will be deemed indispensable by every amateur who once tastes it.

Magnificent—P, very large, obtuse cone, light scarlet, good flavor, very productive, very valuable.

Diadem—P, very large and showy, rounded, beautiful light-scarlet, pleasant flavor, a remarkably fine and beautiful berry; plant very robust, vigorous, and hardy, with tall light-green foliage, very productive: a seedling of the Iowa.

Huntsman's Favorite—P, medium size, obtuse cone, bright scarlet, very handsome, sprightly, juicy, sweet, and very fine, productive, highly valuable. This variety was selected by Professor Huntsman, from a bed of my seedlings, and was named as above.

Crimson Perfumed—P, large, obvate, or rounded, crimson, sweet, juicy, high perfumed flavor when fully ripe, very productive, valuable; foliage dark-green.

Malvina—P, large, obvate, bright crimson, juicy, sprightly, good flavor, very productive. This variety greatly resembles Hovey's Seedling, (its parent) both in the growth and foliage of the plant, and in the form of its fruit. But when contrasted, it is rather smaller, with the advantage that the berries are of a more average size, and less unequal than that variety; the color is a bright red, the berries more juicy, and of a more spirited and higher flavor, and it ripens fully a week or more before the Hovey, thus obviating the disadvantages of that variety. It is firm and well-suited for market; foliage dark-green, and luxuriant when in full growth. A grower who sent a considerable quantity to market the past season, contracted for the whole at 31 cents per quart.

Wm. R. Prince,
Flushing, N. Y.

The Plow—An Improvement Wanted.—In our volumes of last year, under the above heading, will be found an article in which we called attention to a defect in the action of plows, a remedy or preventive of which would certainly be a great improvement. The defect to which the attention of our readers was called in that article, seems the *necessary* result of the present form and mode of action of the plow, which is in reality a *wedge* forcibly dragged through the soil, lifting up that portion which is above it, at the expense of hardening or making more compact that portion which is below it. This mode of action has a tendency to harden and glaze over the subsoil, or that part of the soil on which the sole of the plow rests in its passage, and is productive of several injurious effects; as for example: 1. It makes a compact surface very hard to break through or get under in subsequent plowings. 2. It makes the lower surface so dense that the roots of plants must often find it impossible, or very difficult to penetrate it; and 3. It forms a groove in which surface-water must sometimes be retained long enough to injure the growing crops.

The above is the defect which it is desirable to get rid of. The improvement wanted is some contrivance by which this defect could be prevented or remedied. Nothing of the kind has been as yet proposed, so far as we can remember, by any of our ingenious countrymen. The following proposal was lately made at an agricultural meeting in Great Britain. The object, let it be remembered, is to preserve the bottom of the furrow in a pervious condition, and to get rid of that compactness which, in addition to the evils already named, must be a great obstacle to the perfect drainage of a clay soil. The remedy proposed consists in the adaption of rollers to the sole shoe, or in adding a hind wheel, notched or teethed, so that when following in the track of the sole shoe the notches or teeth may break up the smooth track formed by its action. The proposer of these two modes of improving the plow seems to think most favourably of the idea of rollers, (whose mode of action, however, he does not specify,) as they would not only prevent the glazing and hardening, but would in his opinion, lessen the draught.

We submit these suggestions to our ingenious inventors and mechanics, and to our agricultural brethren of a mechanical genius, in the hope that they may prove a germ of a much needed discovery or invention.—*Country Gentleman.*

RECIPES.

Tomatoes for Winter Use.—Late in the season, take tomatoes not too ripe, cut them into thick slices, salt them lightly in a flat dish, sprinkling the salt over them as you cut them. Pour off the water; put them in a jar, strewing black and Cayenne pepper through them and a few slices of onion, two wine-glassfuls of sweet oil, a few blades of mace, and vinegar enough to cover them up tight to exclude the air.

Baked Sweet Apples.—Wash well the apples; place them in a pan with a very little water, that the juice may not burn, if they are to be cooked in a brick oven; then put the apples in a jar, cover them close, and bake them five or six hours. Sweet apples should be baked long after they are tender.

Baked Sour Apples.—Wash well the apples; place them in a pan; pour in a teacupful of water and one of sugar; bake them slowly till done. Eat them with cream and the juice which cooks from them.

Buckwheat Porridge.—Take a quart of rich milk, and after boiling it hard, stir in as much buckwheat meal as will make it of the consistency of thick mush, adding one teaspoonful of salt and a table-spoonful of fresh butter. In five minutes after it is thick enough take it from the fire. If the milk is boiling hard and continues to boil the meal is being stirred in, very little more cooking will be required. It should be placed on the table *hot*, and eaten with butter and sugar, or with molasses and butter. This is sometimes called a five minute pudding; it is excellent for children as a plain dessert, or for supper. Some add a seasoning of ginger or grated nutmeg before sending it to the table.

Corn Meal Pudding without Eggs.—Take six table-spoonfuls of meal, and stir molasses enough in it to have the meal all wet, and no more; that will sweeten it enough; then take one quart of milk and boil it; pour it on the meal boiling hot; stir the meal while pouring the milk on to it so as not to have it lumpy: stir in three table-spoonfuls of wheat flour, wet with a little cold milk; salt it, and bake two hours; add spices, if you like. This will make an excellent pudding.

Queer Remedy for Whooping Cough.—The Springfield *Republican* says:—A very great relief we are assured upon practical knowledge, is obtained by wearing about the neck a fresh tarred rope of the size of a bed-cord, covered with a thin ribbon. The aroma of the tar has a wonderful effect in quieting the cough and preventing the spasms.

Ploughing.—Sandy soils may be plowed early, and while wet; but clay soils should never be disturbed till they are dry enough to crumble, or pulverise when turned up. Clay soil, being malleable, and but slightly elastic, the compression, or packing, by the mould-board, will not swell out again; and one plowing of clay land, when wet, will do it more harm than twenty good ploughings can afterwards remedy. It is on this principle, that an old road can never be made good soil.

To Preserve Herbs.—All kinds of herbs should be gathered on a dry day, just before, or while in blossom. Tie them in bundles and suspend them in a dry airy place with the blossoms downwards. When perfectly dry wrap the medical ones in paper and keep them from the air. Pick off the leaves of those which are to be used in cooking, pound and sift them fine, and keep the powder in bottles, corked up tight.

Cramp.—Those who may be subject in the night-time to that excruciating pain called cramp, will doubtless be glad to learn that by tying any kind of a bandage very tight around the leg, immediately above the knee, this unpleasant sensation will be instantaneously removed.

A Few Words about Smut in Wheat.—In harvesting last summer, I discovered an ear or head which was all smut but five or six grains. I determined to try an experiment upon it. I sowed it in the first month. Four of the grains germinated, and I did not have one head or ear of wheat—all smut. Is there any way whereby we can completely eradicate it? If so, we would like to have the information. We have a fine harvest, but a good deal complaint of smut. D. Farlow. *New Market, Randolph county, N.C.* [Smut may be in a good degree, if not entirely, prevented, by washing the seed thoroughly (the last washing in brine) and then rolling it well in dry powdered water slacked fresh lime, some hours before sowing. After being thus treated, it should not be put into bags which have had smutty wheat in them.—*Country Gentlemen.*

Revelations of the Microscope.—It would be a vain attempt were we to try to convey to our readers any idea of the great discoveries which have been made by the microscope, or of the important purposes to which it has been applied. Second only to the telescope, though in many respects superior to it, the microscope transcends all other instruments in the scientific value as well as in the social interest of its results. While the human eye, the telescope and microscope combined, enables us to enjoy and examine the scenery around us, to study the forms of life with which we are more intimately connected, it fails to transport us into the depths of space, to throw into relief the planets and the stars, and to indicate the forms and arrangements in the worlds of life and motion which distance diminishes and conceals. To these mysterious abodes so long unrevealed, the telescope has at last conveyed us. It has shown us those worlds and systems, of which our own earth and our own system are the types; but it fails to enlighten us respecting the nature and constitution of the celestial bodies, and the forms of life for which they were created.

In its downward scrutiny, as well as in its upward aspirations, the human eye has equally failed. In the general view which it commands of animal, vegetable and mineral structure, it cannot reach those delicate organizations on which life depends, or those structures of inorganic matter from which its origin and composition can be derived. Into these mysterious regions where the philosopher has been groping his way, the microscope now conducts him. The dark abodes of unseen life are lighted up for his contemplation—organisations of transcendent beauty appeal to his wonder—new aspects of life, new forms of being, new laws of reproduction, new functions in exercise, reward the genius of the theoretical and practical optician, and the skill and toil of the naturalist. With wonders like these all nature is pregnant; the earth, the ocean and the air—times past and times present, now surrender their secrets to the microscope.

The invisible life of pre-Adamite ages has been embalmed in the rocks and stones buried deep in the bowels of the earth. Its siliceous and calcareous defences re-appear in the flints, the limestones, the trachytes, the chalks, the opals, the tripolis, the polischiefers, the guanos, the soils, and the muds of every region of the globe. It is ejected from volcanoes in the arctic and in the torrid zones—it is breathed in the siroeco—it falls silently on the deck of the ship in the Atlantic and in the Pacific oceans, and it is embosomed even in the stony meteors that fall from the heavens.

The invisible life of modern times, as disclosed by the microscope, has been the subject of careful study by the naturalist and the physiologist. All space—within us, and without us, and around us—swarms with its countless millions; and on whatever speck or atom of life man rests his eye, he learns the instructive lesson, that he is not the only creature that is fearfully and wonderfully made. Descriptions and drawings of these singular structures will be found in the works of Ehrenbergh, Pritchard, Quekett, Carpenter, and Griffiith, and Henfrey, and the general as well as the scientific reader will gather wisdom and instruction from their valuable pages.

But however interesting is the study of microscopic life, and however beautiful its forms and startling its functions, the microscope claims a higher value in having given birth to the truly useful science of *Histology*, which describes the structure of animal and vegetable tissues in reference to their origin and development. The elementary tissues of animal and vegetable life have been eagerly studied both in their structure and functions, and physiologists have been thus led to the remarkable conclusion, that each integral portion of the animal or plant possesses an independent life of its own, performing a series of actions peculiar to itself, 'and,' as Dr. Carpenter expresses it, 'that the life of the body, as a whole, (like a symphony performed by a full orchestra,) consists in the harmonious combination of its separate instrumental acts—the circulation of the blood instead of *making the tissues*, simply affording the supply of prepared nutriment at the expense of which they *evolve themselves* from germs previously existing.' A single primordial cell, therefore, is the first step in created life, and from the congeries of cells, to all appearances similar and equal, are developed those various parts of the noble casket which constitutes man, and encloses his immortal soul.

To the exigencies of social life, too, the microscope has made valuable contributions. It detects the invisible ingredients, whether precipitated in atoms or aggregated in crystals, which adulterate our food, our drink, and our medicines. It displays the lurking poison in the minute crystallisations which its solutions precipitate. It tells the murderer that the blood which stains him is that of his brother, and not of the other life which he pretends to have taken; and as a witness against the criminal, it, on one occasion, appealed to the very sand on which he trod at midnight.

DEATH OF DR. BUCKLAND.

The Rev. Dr. Buckland, Dean of Westminster, but better and more widely known from his works on the science of geology, died at Clapham on Thursday last, the 14th inst. Unhappily the intellectual death of Dr. Buckland dates, not from the year 1856, but from some six or seven years ago, since which time a cloud has come over his once active mind and he has spent the evening of his life in confinement. He was born at Axminster, in the year 1784, and received his early education at Winchester School, whence he moved to Oxford in 1801. He took his degree of B.A., in 1805, and was elected Fellow of his College in 1808. In 1813 he was appointed Reader in Mineralogy, and in 1818 Reader in Geology, to the University. The geological museum at Oxford owes its chief excellence to Dr. Buckland's industry. In 1820 he delivered before the University of Oxford a lecture, which was afterwards published under the title of *Vindiciæ Geologicæ; or, the Connexion of Geology with Religion Explained.* The object of this lecture was to show that the study of Geology, so far from being irreligious or atheistic in its consequences, has a tendency to confirm the evidences of natural religion, and that the facts developed by it are contistent with the accounts of the creation and deluge as recorded in the Book of Genises.

In 1825 Dr. Buckland vacated his fellowship by accepting the living of Stoke Charity, near Whitchurch, Hants; in the same year the was promoted to a canonry in the cathedral of Christ Church, and married Mary, the eldest daughter of Mr. Benjamin Morland, of Sheepstead-house, Abingdon. In 1836 he published his Bridgewater Treatise, entitled *Geology and Mineralogy, Considered with Ceference to Natural Theology.* The *Transactions of the Geological Society* contain a variety of contributions from his pen. Among them perhaps the most practically valuable is his *Description of the South-Western Coal District of England*, which after standing the test of thirty years is appealed to by all scientific persons as a standard work. In 1847 he was appointed a trustee of the British Musem, and for two years took the greatest interest in arranging and increasing the geological collection there. He rendered material assistance in the formation of the Museum of Practical Geology, Jermyn-street.

In 1845 Dr. Buckland was preferred by the late Sir Robert Peel to the Deanery of Westminster, vacated by the promotion of Dr. Samuel Wilberforce to the episcopal bench. He set an example to other cathedral bodies by facilitating the admission of the public to view the monuments and other objects of historic interest contained in the Abbey Church. He also exerted himself as a sanitary reformer, and especially in the endeavor to secure the benefits of pure water for the metropolis; with this object in view, he wrote, he spoke, and preached incessantly while allowed the use of *mens sana in copore sano.* As a theologian Dr. Buckland never distinguished himself. The Deanery of Westminster has often proved a stepping-stone for a bishopric; Dr Buckland's two immediate predecessors—Dr. Wilberforce and Dr. Turton—were promoted respectively to the sees of Oxford and Ely.

Experiments with Cast Iron.—The War Department of the British Government is about to institute a series of experiments with cast iron, embracing the following inquiries:—Chemical analysis, specific gravity, tenacity, tension, transverse strain, compressibility, impact and elastic. The Department wishes to secure cast iron of such a quality as will best suit the purpose of gun casting and these experiments with every variety of strong cast Iron that can be procured. Iron masters willing to submit their pig iron to such an investigation are invited to send samples to Woolwich, to be tested. This, we think, is an excellent method to discover and obtain the best of pig iron. The experiments are to be tabulated and published.

High Cranberry.—This shrub, growing in the swamps around us, can be readily cultivated in our gardens as our currant, and is worth more, certainly than the goosebery. It bears rich clusters of scarlet berries. and as an ornamental tree or shrub, is far preferable in gardens to hundreds of those of foreign growth, that are obtained with great expense, and raised with a great deal of trouble. Beside, the fruit makes a rich, delicious sauce, preserve, tart, or pie, aud is invaluable in the pastry department. It can be raised where the common cranbery would fail, and as it is easily transplanted, or can be raised from cutting, we are surprised that it is not more cultivated. We hope to see it generally introduced into our gardens.—*Granite Farmer.*

CURIOUS DYING SCENES.

According to Fielding, Jonathan Wild picked the pocket of the ordinary while he was exhorting him in the cart, and went out of the world with the parson's cork-screw and thumb-bottle in his hand. Petronius, who was master of the ceremonies and inventor of pleasures at the court of Nero, when he saw that elegant indulgence was giving place to coarse debauchery, perceived at once that his term of favor had arrived, and it was time to die. He resolved, therefore, to anticipate the tyrant, and disrobe death of his paraphernalia of terror. Accordingly, he entered a warm bath, and opened his veins, composed verses, jested with his familiar associates, and died off by insensible degrees. Democritus, the laughing philosopher, disliking the inconveniences and infirmities of a protracted old age, made up his mind to die on a certain day; but to oblige his sister, he postponed his departure until three feasts of Ceres were over. He supported nature on a pot of honey to the appointed hour, and then expired by arrangement. Jerome Carden, a celebrated Italian physician, starved himself gradually, and calculated with such mathematical nicety, as to hit the very day and hour foretold. When Rabelais was dying, the Cardinal sent a page to inquire how he was, Rabelais joked with the envoy until he found his strength declining, and his last moments approaching. He then said, "Tell his eminence the state in which you left me. I am going to enquire into a great possibility. He is in a snug nest; let him stay there as long as he can. Draw the curtain; the farce is over."—When the famous Count de Grammont was reported to be in extremity, the King, Lous XIV., being told of his total want of religious feeling, which shocked him not a little, sent the Marquis de Dangeau to beg of him, for the credit of the court, to die like a good Chistian. He was scarcely able to speak, but turning round to his countess, who had always been remarkable for her piety, he said, with a smile, "Countess, take care, or Dangeau will filch from you the credit of my conversion."

The Metals.—The ancients knew but seven metals,—gold, silver, iron, copper, mercury, lead and tin. Antimony was first discovered by Basil Valentine, in 1490, and that by accident, while following his alchemical pursuits. Bismuth and zinc were discovered in 1530: while from 1733 to the present period, there have been found no less than 49 new metals, by chemical research. These are known to be distinct from each other in identity and characteristics.

To ascertain the length of the day and night, any time of the year, double the time of the sun's rising, which gives the length of the night; and of its setting, which gives the length of the day. This is a method of "doing the thing" which but few of our readers probably, have been aware of.

An Excellent Cement.—Five years ago, we applied a cement composed of white lead paint, whiting, and dry white sand, to a small tin roof that leaked like a sieve, it soon became nearly as hard as stone, has never scaled off, and has kept the roof, since then perfectly tight. It was put on about the consistency of thin putty.

Slater's cement for stopping leaks around chimneys, is composed of linsed oil, whiting, ground glass, and some brick dust. It is a good cement for this purpose; also for closing the joints of stone steps to houses.—*Scientific American.*

New kind of Fuel.—A new and effective kind of fuel has been invented, in the form of balls composed of fire-clay, which, when put in the fire soon become hot, and continue heated for a long time, while, of course, they occupy a considerable space which would otherwise be occupied by coal. These fire-clay balls last an indefinite time, and are said to effect a saving of 33 per cent. in the consumption of coal.

Mildew.—Mr. William Dyer informs us that soapsuds is a sure preventive of mildew on goosberries; and that if freely administered they will even arrest the evil in an advanced stage. The publication of this may seem a little unseasonable at this time, but treasure the information up, and it may be of value another year.—*Waterville Mail.*

The Tomato.—It appears that the tomato has been used in some parts of Illinois and in the neighbourhood of Vincennes, for more than fifty years. The tomato, though now much more common than formerly, is still not to be found in many farmers gardens. This ahould not he. By a little labour in enlarging the list of garden esculents, the farmers' annual expenses may be materially decreased, and much may be added to their comforts.

KEEP WEED SEEDS OUT OF MANURE.—Some seeds will live through almost any usual fermentation of the heap, and besides it should not heat and ferment. Many weeds cut in flower will still ripen seed, and as a general thing the seeds of our most pernicious weeds are most tenacious of life. The fire is the proper place for them, and as ashes they are harmless and profitable.

SCOURS IN SHEEP.—The best remedy we know of for scouring in sheep, is milk thickened with wheat flour. A pint should be given twice a day till the unnatural discharge is stopped.

ONE SIDED GROWTH.—A few years ago an intelligent gentleman had a contract to set out a hundred shade trees. He took the precaution to mark the north side of each tree, and to plant the same side north when it was transplanted. By this carefulness he saves the life of almost all that he moved. In this hemisphere, the sun shining upon the southern half of a tree so constantly, stimulates the growth of the fibres on that side considerably above the other, so that in many cases, the annual rings are much larger on this side than on the other.

PRESERVING BUTTER.—"It is said" that butter will keep for a long time, if each pound be treated with one ounce of the following composition, recommended by Dr. Allan viz: Salt 2 parts; saltpetre 1 part; sugar 2 parts.

SODA CRACKERS.—The following recipe will make crackers superior to any ever purchased:—To 14 cups of flour, add 1 cup of lard, 4 teaspoonsfnl of cream tartar, and 2 of soda: rub these ingredients well into the flour, add three cups of water, work thoroughly and bake quick.

WIFIE, COME HAME.

Wifie, come hame,
My couthie wee dame!
O but ye're far awa',
Wifie, come hame!
Come wi' the young bloom o' morn on thy broo,
Come wi' the lone star o' love in thine e'e,
Come wi' the red cherries ripe on thy mou',
A' glist wi' balm, like the dew on the lea,
Come wi' the gowd tassels fringin' thy hair,
Come wi' thy rose cheeks a' dimpled wi' glee,
Come wi' thy wee step, and wifie-like air,
O, quickly come and shed blessings on me!

Wifie, come hame,
My couthie wee dame!
O my heart wearies sair,
Wifie, come hame!
Come wi' our love pledge, our dear little dawtie,
Clasping my neck round, an' clamberin' my knee;
Come let we nestle and press the wee pettie,
Gazing on ilka sweet feature o' thee:
O but the house is a cauld hame without ye,
Lanely and eerie's the life that I dree;
O come awa', an' I'll dance round about ye,
Ye'll ne'er again win frae my arms till I dee.

BALLANTINE.

THE CHILD OF THE COUNTRY.

Child of the country! on the lawn
I see thee like the bounding fawn,
Blithe as the bird which tries its wing
The first time on the wings of Spring;
Bright as the sun when from the cloud
He comes as cocks are crowing loud;
Now running, shouting, 'mid sunbeams,
Now groping trout in lucid streams,
Now spinning like a mill-wheel round,
Now hunting Echo's empty sound,
Now climbing up some old tall tree—
For climbing's sake—'tis sweet to thee
To sit where birds can sit alone,
Or share with thee thy venturous throne.

EDITORIAL MISCELLANY.

Toronto Markets.

Toronto is becoming a very important wheat market. Enjoying an excellent geographical position, within a few hours sail of the south shore of the lake, where there are numerous mills and a good market, as at Rochester, Wilson, Oswego, Ogdensburg, &c., in the midst of a most fertile country, into which now radiate railways, East, West, North and North-west, with abundant facilities for purchase, storage, and shipment; and possessing men of business, energy and tact, we believe that Toronto is speedily becomingthe leading market in the Provinces. The receipts of wheat for the past two months, are 275,000 bushels per week; of this about 35,000 bushels in each week have been purchased on the market, while a great deal of it has been sold by country dealers to our wholesale buyers, in lots of 1,000 bushels and upwards, being what is termed, "shipping parcels." The shipments of this season up to last week, were over 750,000 bushels, being nearly double that of the whole of any previous year. Farmers have been bringing in their wheat very freely, many of them having learned a salutary lesson by the losses experienced last year in waiting for higher prices. The ruling rates for the past month at this point have been at an average of about 7s. per bushel, which may be considered a very fair remunerating price. Present appearances do not, however, indicate a continuance of this figure. Yet, there is no telling what may occur, and observation has taught us that the fulfilment of the predictions of produce prophets is exceedingly doubtful. The best policy to be pursued is to sell when convenient, provided a remunerating price can be realized. The closing price to-day, (Oct. 7,) is 6s. 8d. per bushel.

Oats plenty by importation, but farmers are bringing in very few. They are held at 2s. 6d per bushel in store by lots not less than 100 bushels, and by retail 2s. 9d.

Peas are scarce, and meet ready sale at 3s. @ 3s. 9d. per bushel.

Potatoes have not been in such good supply as formerly, and the downward tendency in prices has been checked. The ruling figures are now from 3s. 9d. @ 4s. per bushel. In large lots they have been sold at 3s. 6d.

Apples too have become scarce, the stock of imported now on hand being small. Good keeping apples sell at 10s. @ 10s. 3d., and inferior at 8s. 9d. per brl. Farmers sell at 2s. 6d. @ 3s. per bushel. Peaches are not plenty, but considering the price, are still in fair demand. They bring from $2½ to $3 per basket. Pears becoming plenty at $5 per brl. wholesale, and 2s. 6d. @ 3s. per peck retail.

Butter.—The supply during the week has varied, and the price has fluctuated with it. Since Monday there has been more offering, and 1s. 3d. @ 1s. 4d. are the preces realized. Tub is now plenty, and is selling at 1s. @ 1s. 3d. per lb. A quantity might be had at 10½ @ 11d.

Sheep.—Some five hundred sheep brought by Mr. Mullany from Illinoies were sold to various buyers at $3½ to $4 each. This is about the current rate.

☞ We must again urge upon our friends who are in arrears the necessity of remitting as soon as possible. We are aware that there is sometimes when difficulty is experienced by Township societies in obtaining the division of the Government grant, yet, we hope that the Secretaries and Treasurers who are indebted to us will be as prompt as posssible.

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THE

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KINGSTON EXHIBITION—PRESIDENT'S ADDRESS—PRIZE LIST, &c.

We lay before our readers, in this number, the President's Address delivered at the Provincial Fair held at Kingston; also an official copy of the Prize List, revised and corrected by the Secretary. The imperfect lists published in the newspapers have probably given as much dissatisfaction, through mistakes and omissions, as they have gratification. The Address of Baron de Longueiul was almost too practical, and confined too much to one subject, to command the attention of a popular audience; but in the pages of an Agriculturul Journal it will be read with interest by most persons engaged in rearing stock, especially that kind which the President has brought under notice:—

Farmers of Canada,

Each succeeding year the duty which devolves on the President of this Association in delivering his annual address becomes more difficult, and in my case it is rendered peculiarly so, as all can testify, who either heard or have since read the very eloquent and practical lecture of our passed President at Cobourg. Under these circumstances I must have your indulgence for the few remarks I am about to make on a subject which has already been so ably handled by my predecessors in office.

Since we last met Canada has achieved an almost national triumph at the great exhibition held in Paris; and although we could not vie with older civilisations *in* manufactures and the arts, we have come out of the struggle with honor in the practically useful, particularly as connected with agriculture and the productions of the soil. Our grain attracted attention by its superior excellence; our woods were inferior to none in variety, and in their adaptability to all useful purposes; and amongst the implements of husbandry, a Canadian plough was pronounced second to one only, and that was exhibited by England, the greatest and most scientific mechanical and agricultural country in the world.

To maintain the place we have now taken, and to keep pace with the rest of the world in the advances made in agriculture, and in those manufactures, in which, from our climate and geographical position, we are capable of competing with other countries; our main reliance must be upon the education of the rising generation, a fact, to the importance of which, I am sure all who now hear me are fully alive, but as applied to agriculture sufficient prominence is not generally given to education. At our excellent common schools an arrangement might easily be made whereby such children as are intended by their parents to follow agriculture as a pursuit, could receive an elementary training in the theory, which would in after life be of the greatest benefit in practice. For the purpose of facilitating this, each school in the rural districts should be supplied

by the board of education with a careful selection of the most approved works upon agriculture for the use of the older pupils, and with easy manuals, say in the form of catechisms for the younger ones.

But theory without practice will not make a farmer, and where the parents can allow it, the English system might be followed with advantage. It is the custom there for young men who have learned what they can from books, to reside as pupils for a year or two with some Agriculturist of eminence, and to complete their education, thus acquiring a knowledge of the mechanical and field operations necessary on a farm, and putting into practice what they have acquired theoretically.

I must now take leave of this subject, but not without pointing out the bad effects likely to follow from a want of attention to a matter so all-important as this.

In some statistic returns of the neighboring State of New York I see mentioned that "between the years 1845 and 1850, 671,692 acres were added to those previously under "improvement, and of course there ought to have been at least a corresponding increase "in the agricultural products of the State. But what was the fact? Of pease and beans "there was a decrease of 1,132,054 bushels.

"Of wheat the decrease was 270,724 bushels, and there was also a great decrease in the "following articles, viz.:—potatoes, buckwheat, and cattle.

"There was an increase in the amount of corn, rye, oats, barley, Hay, butter, and "cheese produced in that State, but not greater than would be expected from the increase "of the population, which was 494,123 during those five years." Now, whence does this state of things arise? From a want of proper education amongst the agricultural classes, and a consequent defective system of culture. And can it be denied that the same influences are at work in Canada, I fear it cannot; true, a statistical return might probably exhibit no such falling off in crops here, but that would be delusive. Hundreds of acres, of virgin soil, are annually sown in wheat, and thus more than keep up the average, but are old lands as productive as they formerly were? Has not the cultivation of winter wheat been abandoned in many places where it grew abundantly? Has the climate in those localities altered? No, but the soil has become impoverished by bad management. And how is this to be avoided? By educating the Farmers, and thus leading them to adopt an improved system of culture which would restore the land to its former fertility.

One of the greatest discoveries of modern farming, one which in its effects, assists greatly in bringing land into a high state of cultivation, and keeping it productive, is thorough draining.

Too much water in the soil prevents the sun's rays, which are intended by nature to warm the land by their heat, from doing so, as they are expended in evaporating the water from its surface, plants are consequently deprived of that genial warmth at their roots which so strongly favors their rapid growth.

By removing the water from the soil, particularly from clay land, it becomes more mellow, pliable and open, is more easily worked, and admits the air, which is most essential to its fertility and to the healthy growth of crops; as draining not only removes the water, but causes the air by suction to penetrate after it; a process renewed at every successive shower of rain, nature abhorring a vacuum, the air penetrates into the pores of the earth as the water is drawn from it by the rains. Manures also produce greater effect on drained land, as where air is introduced into the soil, vegetable matter decomposes rapidly, producing carbonic acid in large quantities, as well as other compounds beneficial to plants. It is a curious but well known fact that farms on which the crops are liable to be burned up in seasons of drought, are often much improved by draining; this is caused by the noxious water being washed from the subsoil, and inducing the roots to descend deep into it, so that on a drought recurring, although the surface may again become parched, the plants are not injured as heretofore, being fed and watered by the deep soil into which their roots have penetrated.

But draining is a very expensive operation, and at present beyond the reach of most farmers in this country. Should it remain so? Without assistance doubtless it will; but might not some plan for that purpose be devised by our Minister of Agriculture? Might not a certain sum be set apart by the legislature to be loaned to farmers who are desirous of draining their land? This plan was adopted in Ireland, where hundreds of acres of waste land have by this means been reclaimed and rendered profitable. Although draining on a large scale cannot, as yet, be undertaken by most of our farmers, unless assisted by Government, it is in the power of almost every one to try it in a small way, if done as recommended by the late venerable Judge Buel, and called by him "Brush

Draining." His plan was to dig trenches, lay facines in the bottom of the drain, and cover them with stripes of bark. Drains on this principle costing little more than the labor, he states, were perfectly effective for upwards of twenty years. Let this be tried on a quarter of an acre, and the result will be, that stiff soils will be found to be more easily and cheaply worked; manures will have more effect and will go further; seed time and harvest will be earlier and more sure; larger crops and of a better quality will be reaped; wheat will grow on soil formerly unproductive, and acre after acre added, as the farmer finds time and means, to that already drained.

Deep ploughing, where land is well drained, is also of the greatest benefit, this was so thoroughly and admirably explained by our passed President in his address last year, that I shall refer you to it, and pass on to the notice of what I consider one of the greatest defects in our present system of farming. Our farms are much too large, or in other words, we attempt to cultivate more land than we have either the force or the means of tilling to advantage. The consequence is, that the soil, from want of manure, and being properly worked, is soon run out, and becomes unproductive. If one-half of the quantity of land, now merely scratched over, were thoroughly cultivated, farmers would find their crops much greater, and would soon place themselves in a position to handle to advantage the large farms their present system yearly tends to impoverish.

I should, had time permitted, have made some remarks upon stock generally, a branch of farming in which we have made most satisfactory improvements. The enterprise of individuals, and the exertions of local agricultural societies in procuring good stock, are now beginning to produce a marked influence at our shows. Sheep of all the most approved breeds; fine cattle, both thorough bred and grade, are exhibited, and a growing taste for the improved breeds is becoming each year more manifest. Fearing, however, I might detain you too long, I shall confine myself to one class only, and proceed to the consideration of the most noble, and I may add, the most useful animal on a farm, viz., the Horse. He is, however, sadly mismanaged by our farmers in general, both as to breeding, and the care and treatment bestowed upon him. Horse breeding is usually considered both unsatisfactory, and as attended with more trouble, and less profit than any other description of stock raising. This, I am inclined to think, arises, in a great degree, either from a want of knowledge on the breeder's part, or from the neglect of certain rules which should be particularly attended to by them. Most men think when a mare is fit for nothing else, she is fit to breed from; this is a great mistake; to raise good colts she must have a good constitution as well as form, and should be free from certain diseases, which long experience has proved to be hereditary, such as blindness, roaring, thick wind, (commonly called heaves in this country), spavins, curbs, ringbones, and founder, all of which are often bequeathed to their progeny, both by sire and dam; and even when they do not appear in the first generation, frequently do in the next; many veterinarians of eminence go so far as to maintain that the consequenees of hard work, or ill-usage will descend. Peculiarities of form and constitution will also be inherited, and unskilful or careless breeders often pair animals so badly that the good points of both are lost, and the defects increased, the produce being inferior both to sire and dam; if, therefore, a man has a diseased or broken-down mare, it would be cheaper for him to buy horses than to breed from her. I may, however, be asked, what is a poor farmer to do when he has an unsound mare, and not sufficient cash to purchase, having at the same time a large run for young animals, should he not breed from them? He had better not; let him purchase foals from some more fortunate neighbor, and when they are four years old he will have useful beasts at little more cost than wretched brutes bred from his unsound mare would come to at the same age, and which would probably be quite valueless.

Form being hereditary, to avoid disappointment a breeder must consider for what market he intends a horse, as what is a defect in an animal intended for light draught and the saddle, is a highly desirable point in a farm horse, or one intended for heavy draught, I refer particularly to the inclination of the shoulder: in the first case it should be oblique, this form lessening the shock on the forelegs when the horse is put to fast work, in the latter it is desirable, if not absolutely necessary that it should be upright, which enables an animal to throw more weight into the collar when called upon in a dead pull. In choosing a stallion some attention should be paid to his temper. It would not, perhaps, be advisable to reject a horse, perfect in other respects, because he is vicious, but breeders may lay their account to having in many cases great trouble in breaking colts got by such a sire.

A notable instance that temper is hereditary, is familiar to most of the farmers and breeders of horses in this neighborhood, in the case of Somonochodron, whose get were notoriously vicious and hard to break.

From the nature of the work done by the horse, and as I have already said, in many instances from hereditary predisposition, he is liable to a vast number of diseases. It would be impossible to treat of all these, but I shall mention a few of the most prevalent, and the best manner of curing them, where they are curable. I say where they are curable, for many diseases to which this animal is subject, have by even the most scientific been found beyond the reach of either surgery or medicine: quacks, however, are always to be found who profess to cure everything, and many farmers falling into the hands of such persons, waste both time and money, in the end probably loosing the services of a horse which had it been let alone might have been worked for several years.

The first I shall mention is an affection to which farm horses are all subject, and on which there is generally more misconception than any other they are liable to, viz., Botts. In the latter part of the summer the gadfly may be observed very active about the horse, darting with great rapidity towards him and depositing its eggs on all parts that can easily be reached by the animal with his mouth. These eggs when licked by the horse burst, and a small worm escapes which adheres to the tongue, and is conveyed to the stomach with the food; by means of a small hook, it there clings with a very firm hold to the cuticular coat of that organ, and remains feeding on the mucus during the winter and spring, when having attained considerable size it becomes detached, and is evacuated by the horse.

This being the true history of the bott, you may perceive they can give the animal no pain, as they are fastened to the insensible coat of the stomach. They cannot be injurious, as a horse in the highest health may have his stomach filled with them, and their presence not even suspected till they are evacuated. They cannot be moved by medicine which it would be safe to give a horse, because they are not in a part where ordinary medicine could reach them, and if they were, have their mouths too deeply buried in the mucus for it to affect them. And lastly, of the many hundreds of horses dissected at the Veterinary Colleges of London and Paris, no horse has ever yet been found injured by Botts. The wisest thing, therefore, in this case, is to let the horse alone, and allow the botts to pass off of themselves. Horses, and young horses particularly, are much subject to a swelling of the lower bars of the palate, known as Lampas. To cure this they are often brutally treated by having the bars burned down with a hot iron, this is torturing the animal to no purpose. A few slight cuts across the bars with a sharp penknife, a few bran mashes, and in somecase, a gentle dose of cooling medicine is all that is necessary. Another disease of the mouth is what is called wolf's teeth. It is occasioned by the second teeth not rising immediately under the milk teeth, when they are found to cause swelling of the gums, sorness, and frequent wounding of the cheek. Have them punched out. This is more properly an irregular growth of the teeth; wolves teeth being really too small, supplementary ones, seldom injurious, and therefore better let alone,

Farmers horses in all countries, from the nature of their work, and of the food on which they are usually fed, are peculiarly liable to broken wind, called the heaves in this country, and in the United States, from the heaving motion of the sides in breathing. By great care and judicious feeding it may, in some degree, be mitigated, but is totally incurable. A broken winded horse, in breathing, performs the inspiration at one effort, the expiration at two, which causes the heaving motion of the flanks. This is easily explained; some of the cells have been ruptured, or have run together, and when they are expanded the air rushes in easily with one effort of the muscles, but when the cavities are irregular and full of corners and blind pouches, it is very difficult to force it out again, and two efforts can scarcely suffice.

This disease is most frequently the consequence of the horse being fed on bulky food, and at irregular times, after many hours fasting, and then being put to work again, and sometimes to work requiring great exertion. The stomach being full, presses upon the lungs, almost impeding ordinary inspiration. This is too often the case in most farm stables, and therefore the disease is more prevalent amongst farm horses than almost any others. To avoid it, horses when hard worked should have plenty of oats, and less hay, straw, and other bulky food; they should also, if possible, be regularly fed.

Heaves can be mitigated, and the horse rendered capable of great exertion by judicious feeding; condense his food into the smallest compass, giving plenty of oats and little hay. Keep his bowels relaxed by frequent bran mashes, water sparingly through the day, but

satisfy his thirst fully at night. Never, if possible to avoid it, work him on a full stomach. Give carrots when procurable, as they contain considerable moisture, are very nutritious, and generally have a beneficial effect in chest complaints. As medical treatment is of no avail, I hope none of my hearers will suffer themselves to be imposed upon by such trash as "Heaves Powders," and other nostrums advertised by impudent quacks; they might as well try to set a broken leg by salving their boots with Holloway's ointment, as to cure broken wind with any powders whatsoever.

From the form of the shoulder, lameness very rarely occurs there, but when it does happen, from a slip or side fall, it may be known by the horse dragging his toe along the ground. It is in lifting the foot that the shoulder is principally used, and let a horse be ever so lame, if he lifts his foot the shoulder is not at all affected. In the stable, also, when a lame horse puts his foot flat to the ground, when pointing to ease a lame leg, he is not shoulder lame, were he so the toe only would rest on the ground.

Fomentations, entire rest, and a dose of physic in cases of real strain of the shoulder are the best modes of treatment. Swiming the horse is most inhuman, as it tortures the animal, and only increases the inflamation. If the lameness continues a blister will be of service.

Bog spavin and bone spavin are both so very difficult to cure, that, so far as farmers are concerned, it is not worth their while to meddle with them at all, particularly as spavined horses can be put to all slow work, and if not driven too fast are rather improved by it. I consider both these diseases incurable; repeated blistering is said, however, sometimes to have proved effectual.

Splint is a bony excrescence mostly found on the inside of the leg, it seldom either lames a horse or in any way interferes with his action, except at the time of its formation. If, from being close to the tendon, it causes lameness, shave the hair off the tumor, rub in a little mercurial ointment for a day or two, and blister actively. If of recent formation, they readily yield to this treatment.

Curbs are an enlargement three or four inches below the point of the hock, and are usually accompanied by considerable lameness. Absolute rest, cold fomentations, and repeated blistering when the inflammation is subdued, will prove useful.

Ringbone is incurable.

Corns are more frequently produced by bad shoeing than by any other cause. They are very difficult to cure. Paring the corn well out and painting with butyr of antimony will prove serviceable.

Disease of the navicular joint, situated inside the foot, is frequently taken for shoulder-strain, but they can easily be distinguished by observing whether the toe be dragged along the ground, as it always is in the latter case. Navicular lameness is incurable.

Young horses all have strangles, and epidemic catarrh or distemper is often very prevalent. Strangles begins with a cough and a discharge from the nostrils of a yellowish color mixed with matter, a considerable discharge of ropy fluid from the mouth, and swelling under the lower jaw, which increases with more or less rapidity, accompanied by some fever. The horse, also, has great difficulty in swallowing. The tumor is about the centre of the channel under the jaw,—it soon fills the whole space, is one uniform body, and may thus be distinguished from enlarged glands in distemper. Its treatment is very simple. Blister the tumor well, as soon as it appears, to ripen it sooner; when it is soft at the top and evidently contains matter, lance it freely and deeply. Suffering the tumor to burst forth of itself, is apt to form a ragged ulcer, which is very difficult to heal. Bleeding is not necessary unless the horse be very feverish. A little nitre and a few bran mashes, with green food, if in season, will complete the cure, A mild dose of physic may be given to prevent the swellings and eruptions which sometimes follow strangles. This disease is not contagious.

Distemper is a more serious complaint and is very infectious. It usually commences with fever and a shivering fit, followed by a hot mouth, greater heat of the skin than is natural, heaving of the flanks, and cough. The eyes are red and heavy, the membrane of the nose red, and there is a discharge from it at the very commencement of the disease. This at first is watery, but soon thickens, and becomes mattery and offensive. The glands under the jaw become enlarged, the membranes of the nostrils and throat are inflamed and tender, causing great difficulty in swallowing either food or water. The horse rapidly becomes weak. The legs generally swell, and enlargements appear on the chest and belly; this is, however, rather favorable. On first discovering the disease, the horse should be bled, and the bleeding repeated, if the pulse be frequent and strong.

Apply a blister to the swollen glands, and physic till the bowels are freely evacuated. Warm clothing, particularly about the head, is useful. Warm mashes promote the discharge from the nostrils, aad bring the inflammation soon to a close, and should be frequently put in the manger.

From the great diversity in form of the horse's foot, it would be impossible to lay down directions for shoeing horses with any degree of precision; but taking as an example a foot in its normal state, that is to say, one which has neither been injured by bad shoeing or is naturally deformed, a few plain rules may be given which would tend to keep it sound and well shaped. The external parts of the foot are, the frog, the bars, the sole, and the crust. In preparing the foot for shoeing, the clenches should be raised and filed off, to prevent the enlarging of the nail holes and consequent weakening of their hold; it also prevents stubs being left in the crust, as is too often done when the shoe is violently wrenched off. The edges of the crust must then be well rasped, to detect whether any stubs remain in the nail-holes. The sole ought to be pared out with the drawing-knife until it yields, in the slightest degree possible, to a very strong pressure of the thumb. The crust should then be reduced to a perfect level all round, but left a little higher than the sole. The heels are then to be carefully pared out and left perfectly level, but that portion of the heels between the inflection of the bars and the frog should scarcely be touched, nothing but the ragged and detached parts being removed. Smiths are too fond of what is called opening the heels, which is one of the main causes of contraction. The bars should be left fully prominent, and, if weak, ought scarcely to be touched.

The paring of the frog must depend on its prominence for the quantity it may be necessary to remove, but no more should be in any case taken off than will leave it so far projecting that it shall be just within and above the lower surface of the shoe; this will admit of its performing the functions for which nature intended it. The shoe should be fitted to the foot, not the foot to the shoe; and in nailing it on, special care must be taken that no nail be driven into the foot further back than its broadest part. This is a matter of the greatest importance, for if the nails are too far back, the natural action of the foot is entirely destroyed, and lameness is sure sooner or later to be caused by neglect of this point.

In many of the diseases above mentioned a blister is a most useful remedial agent. The best blister is composed of one part Spanish fly, one part rosin, and four parts of lard. Melt the lard and rosin together, and then mix the flies well in. The best mode of applying a blister is to clip or shave off the hair as close as possible, and then rub the ointment well in. The head of the horse must be tied up for the first two days. At the expiration of twenty-four hours, dress with olive oil, night and morning, till the scabs peel off. When they begin to loosen, wash them with a lather of soap and water. A cradle or wooden necklace, consisting of round strips of wood strung together, reaching from the lower jaw to the chest, will prevent the horse blemishing himself.

As much time and money is often wasted in law-suits about horses, I shall conclude with a slight notice of the law of warranty, and a summary of what constitutes unsoundness.

The warranty must be given at the actual time of the sale; if given either before or after, it is invalid. The warranty of a servant is binding on the master.

A horse is unsound if lame at the time of sale, no matter whether the cause be removable or not. Corns, cough, any disease interfering with perfect freedom of breathing, crib-biting, curbs, enlarged hocks, ossification of the lateral cartilages, pumiced feet, quittor, ringbone, sandcrack, spavin, blood-spavin, and cutting, splint, and contracted feet, when they occasion lameness. All constitute unsoundness.

I cannot, Gentlemen, conclude without calling your attention to the splendid building which, with a noble determination to keep pace with the spirit of the times, has been erected by the inhabitants of this district for your accommodation; and to the very marked and satisfactory improvement shown in every department of the exhibition, let us hope that when the Society again holds our great national jubilee in this City, your then President may have equal cause to congratulate you on the advancement which has been made, as I now have, when I compare this with the last show held in this place.

PRIZE LIST.

HORSES.

CLASS I.—BLOOD HORSES.

8 Entries.

Judges—Oliver Blake, Norfolk; George Stanton, Brant; John Tuthill, Toronto.

Best thorough-bred Stallion, Dew & Nightingale, York Township, 8*l.* 5*s.*; 2d do C E Jones, Brockville, 5*l.* 10*s.*; 3d do E Howard, Fredericksburg, 2*l.* 15*s.*

Best thorough-bred 2 year old stallion, Joseph Stewart, Elizabethtown, Leeds, 3*l.* 10*s.*

Best thorough-bred 3 year old filly, Peter Davy, Bath, Addington, 4*l.* 10*s.*

CLASS II.—AGRICULTURAL HORSES.

226 Entries.

Judges—R McD Huffman, Ernesttown; Joseph Walton, Peterboro; W H Fox, Murray, Northumberland.

Best stallion for agricultural purposes, John Sanderson, Markham, 8*l.* 5*s.*; 2d do John Clark, Nepean, 5*l.* 10*s.*; 3d do E H Lewis, Shannonville, Hastings, 2*l.* 15*s.*

Best heavy draught stallion, John Torrance, Scarboro, imported from Great Britain since last Provincial Exhibition. 24*l.* 15*s.*; 2d do Robert Armstrong, Markham, 5*l.* 10*s.*; 3d do W Cochrane, Pickering, 2*l.* 15*s.*

Best 3 year old stallion, N Davis, York Township, 5*l.* 10*s.*; 2d do J B Spence, Bowmanville, 3*l.* 10*s.*; 3d do James P Lake, Ernesttown, 1*l.* 15*s.*

Best 2 year old stallion, James Addison, Etobicoke, 3*l.* 10*s.*; 2d do James P Lake, Ernesttown, 2*l.* 10*s.*; 3d do Joseph Hunter, Toronto Township, 1*l.* 5*s.*

Best yearling colt, John Gill, Toronto Township, 2*l.*; 2d do Joshua Sisley, Scarboro, 1*l.* 10*s.*; 3d do Edward Darcy, Kingston, 1*l.*

Best 3 year old filly, Samuel Lake, Newburgh, 4*l.* 10*s.*; 2d do Sam D Purdy, Ernesttown, 2*l.* 15*s.*; 3d do Zechariah Kellar, Ernesttown, 1*l.* 15*s.*

Best 2 year old filly, Andrew Smith, Clarke, 3*l.* 10*s.*; 2d do Caleb Hughson, Kingston, 2*l.* 5*s.*; 3d do J Ferguson, Storrington, Frontenac, 1*l.*

Best yearling filly, William Church, Fredericksburg, Lennox, 2*l.*; 2d do Sam Scott, Clarke, 1*l.* 10*s.*; 3d do Reuben Spooner, Kingston Township, 1*l.*

Best brood mare and foal, or evidence that the foal has been lost, R. O. Scott, Fredericksburg, 5*l.* 10*s.*; 2d do Dennis Lake, Portland, 3*l.* 10*s.*; 3d do Samuel D Purdy, Ernesttown, 1*l.* 10*s.*

Best span matched carriage horses, George Henderson, Port Hope, 5*l.*; 2d do W Weller, Cobourg, 3*l.* 15*s.*; 3d do Miles Shorey (Third), Fredericksburg, 2*l.* 10*s.*

NOTE BY JUDGES.—The Judges regret that No. 25, the horses of O S Gildersleeve, Kingston, were not on the ground at the time of competition.

Best span of draught horses, D McKay, Darlington, 5*l.*; 2d do J B Spence, Bowmanville, 3*l.* 15*s.*; 3d do James Morton, Kingston, 2*l.* 10*s.*

Best saddle horse, Robert Carson, Kingston, 2*l.* 10*s.*; 2d do S P Tilton, Montreal, 2*l.*; 3d do W A Geddes, Kingston, 1*l.* 10*s.*

Best single carriage horse in harness, E H Lewis, Shannonville, 2*l.* 10*s.*; 2d do O T Pruyn, Fredericksburg, 2*l.*; 3d do James Walsh, Lindsay, Victoria, 1*l.* 10*s.*

Extra prizes to James Nimmo, Kingston, for a pony, 1*l.*; and Thomas Brownlee, Richmond, for span of farm mares, 1*l.* 5*s.*

CATTLE.

CLASS III.—DURHAMS.

88 Entries.

Judges—Robert Kirkwood, Wentworth; Thomas Stock, do; Thomas Betts, New York; Archibald F. Sherratt, Grey; John Gibb, Ops, Victoria; Matthew Joness, Darlington, —— Place, Oxford.

Best aged bull, 5 years old and upwards. Daniel O'Neill, Paris, Brant, 10*l.*; 2d do George Evans, Oakville, 6*l.*

Best 4 year old bull, Nelson Dollar, Fredericksburg, 9*l.*; 2d do W Ferguson, Pittsburg, 6*l.*

Best 3 year old bull, W Davis, Etobicoke, 8*l.*; 2d do F W Stone, Guelph, 5*l.*; 3d do J P Wheler, Scarboro, 3*l.*; 4th do Baron de Longueuil, Simcoe Island, 1*l.* 10*s.*

Best 2 year old bull, J Simpson, Darlington, 6*l.*; 2d do George Robson, London, 4*l.*; 3d do Ralph Wade, jun, Cobourg, 2*l.* 5*s.*; 4th do Reuben Spooner, Kingston Township, 1*l.* 5*s.*

Best 1 year old bull, W & R Armstrong, Markham, imported June, 1856, from Great Britain, 15*l.*; 2d do W Miller, Pickering, 3*l.*; 3d do George Robson, London, 2*l.*; 4th do George Miller, Markham, 1*l.*

Best bull calf (under 1 year), F W Stone, 4*l.*; 2d do W Ferguson, Pittsburg, 2*l.* 10*s.*; 3d do Ralph Wade, jun, Cobourg, 1*l.* 10*s.*; 4th do George Roddick, Cobourg, 15*s.*

Best cow, Ralph Wade, jun, Cobourg, 5*l.*; 2d do F W Stone, Guelph, 3*l.*; 3d do W Blanchard, Seneca, 2*l.*; 4th do F W Stone, Guelph, 1*l.*

Best 3 year old cow, George Miller, Markham, 4*l.*; 2d do do, do, 2*l.*; 3d do, R Wade, jun, Cobourg, 1*l.* 10*s.*; 4th do F W Stone, Guelph, 1*l.*

Best 2 year old heifer, Wm Miller, Pickering, 3*l.*; 2d do Richard Allen, Darlington, 2*l.*; 3d do W Miller, Pickering, 1*l.* 5*s.*; 4th do do, do, 15*s.*

Best 1 year old heifer, F W Stone, Guelph, imported from England, July, 1856, 5*l.*; 2d do do, do, 1*l.* 10*s.*; 3d do George Miller, Markham, 1*l.*; 4th do do, do, 10*s.*

Best heifer calf (under 1 year), F W Stone, Guelph, 1*l.* 10*s.*; 2d do do, do, 1*l.*; 3d do R Wade, jun, Cobourg, 10*s.*; 4th do F W Stone, Guelph, 5*s.*

CLASS IV.—DEVONS.

16 Entries.

Judges—J P Wheler, Scarboro; W Balkwill, London; John Wade, Cobourg.

Best aged bull, 5 years old and over, Edmund Longley, Shefford, Lower Canada, 10*l.*; 2d do Nathan Choat, Hope, 6*l.*

Best 4 year old bull, Robert Ferrie & Co, Doon, Waterloo, 9*l.*; 2d do G S Burrill, Cramahe, Northumberland, 6*l.*

Best 3 year old bull, (Duke of Devonshire) Richard Coates, Oakville, 8*l.*

Best 2 year old heifer, R. Allen, Darlington. imported 1856, 6*l.*; 2d do G S Burrill, Cramahe, Northumberland, 2*l.*

Best Devon heifer calf, G S Burrill, Cramahe, 1*l.* 10*s.*

CLASS V.—HEREFORDS.

4 Entries.

Judges—Thomas Thompson, Dundas; George Robson, London; John Hawley, Lennox Co.

Best 3 year old bull, Thomas Kirkpatrick, Jr. Kingston, 8*l.*

Best 2 year old heifer, Baron de Longueuil, Kingston, 3*l.*; 2d do Baron de Longueuil, Kingston. 2*l.*

Best 1 year old heifer, Baron de Longueuil, Kingston, 2*l.* 10*s.*

CLASS VI.—AYRSHIRES.

41 Entries.

Judges—Robert Young, Ramsay; Wm Beattie, Leeds; Henry Freeland, Greenville.

Best bull, 5 years old and over, T Irving, Montreal, 10*l.*; 2d do John Boyes, Amherst Island, 6*l.*; 3d do Arch'd Glendinning, Scarboro, 4*l.*

Best 4 year old bull, Thomas Irving, Montreal —for County Hochelaga Society, 9*l.*

Best 3 year old bull, Thomas Irving, Montreal, 8*l.*; 2d do J Durnford, Kingston, 5*l.*

Best 2 year old bull, County Hochelaga Society, C. E.—(very superior) 6*l*; 2d do J Boyes, Amherst Island, Addington, 4*l.*

Best 1 year old bull, Thomas Irving, Montreal, 5*l.*; 2d do J Boyes, Amherst Is. Addington, 3*l.*

Best bull calf (under one year,) James Logan, Montreal, (3½ months old) 4*l*; 2d do do, do, 2*l.* 10*s.*: 3d do J Boyes, Amherst Island, Addington, 1*l.* 10*s.*; 4th do do. do, do, 15*s.*

Best cow, James Logan, Montreal, 5*l.*; 2d do do, do, 3*l.*; 3d do J Boyes, Amherst Island, Addington, 2*l.*; 4th do do, do, do, 1*l.*

Best 3 year old cow. J Boyes, Amherst Island, Addington, 4*l.*; 2d do do, do, do, 2*l.* 10*s.*

Best 2 year old heifer, James Logan, Montreal, 3*l.*; 2d do J Boyes, Amherst Island, Addington, 2*l.*

Best 1 year old heifer, James Logan, Montreal, 2*l.* 10*s.*; 2d do do, do, 1*l.* 10*s.*; 3d do Baron de Longueuil, Simcoe Island, Kingston, 10*s.*; 4th do J Boyes, Amherst Island, Addington, 10*s.*

Best heifer calf (under one year,) Jas Logan, Montreal, 1*l.* 10*s.*; 2d do J Boyes, Amherst Island, Addington, 1*l.*; 3d do do, do, do, 10*s.*

CLASS VII.—GALLOWAY CATTLE.

29 Entries.

Judges—Thomas Thompson, Dundas; Geo Robson, London; John Hawley, Lennox.

[The Judges, in giving their report on Galloways, would take this opportunity of stating that they consider this breed of cattle very valuable and suitable to this country and climate.]

Best 4 year old bull, W R Grahame, Vaughan, 9*l.*; 2d do W Roddick, Hamilton, Tp, 6*l.*

Best 2 year old bull, John Fleming, Vaughan, 6*l.*

Best 1 year old bull, Wm. Roddick, Hamilton Tp, 5*l.*; 2d do do, do, 3*l.*

Best bull calf (under one year,) Wm Roddick, Hamilton Tp, 4*l.*; 2d do John Fleming, Vaughan. 2*l.* 10*s.*; 3d do W R Grahame, do, 1*l.* 10*s.*

Best cow, John Fleming, Vaughan, 5*l.*; 2d do John Torrance, Vaughan, 4*l.*; 3d do W Roddick, Hamilton, Tp, 2*l.*; 4th do do, do, 1*l.* 5*s.*

Best 3 year old cow, Wm Miller, Pickering, 4*l.*

Best 2 year old heifer. George Roddick, Cobourg, imported from Britain in 1856, (Dandy,) 6*l.*; 2d do W R Graham, Vaughan, (imported in September, 1856,) 2*l*; 3d do do, do, (also imported Sept., 1856,) 1*l.* 5*s.*; 4th do do, do, (also imported Sept., 1856,) 15*s.*

Best 1 year old heifer, J. Fleming, Vaughan, 2*l.*; 2d do Geo Miller, Markham, 1*l.* 10*s.*

Best heifer calf (under one year,) John Torrance, Vaughan, 1*l.* 10*s.*; 2d do Wm Miller, Pickering, 1*l.*; 3d do Wm Roddick, Hamilton Tp, 10*s.*; 4th do W R Grahame, Vaughan, 5*s.*

CLASS VIII.—GRADE CATTLE.

60 Entries.

Judges—James Wightman, Hastings; Wm McMicking, Welland; Joseph Smith, Kent; John Gill, Peel; Charles Rundell, Dundas Co.

Best cow, Geo Miller, Markham, York. 5*l.*; 2d do J Pearson, Whitby, 3*l.*; 3d do Wm Ferguson, Pittsburg, 2*l.*; 4th do Jos D Purdy, Ernestown, Addington, 1*l.* 5*s.*

Best 3 year old cow, J Pearson, Whitby, 4*l.*; 2d do R M Huffman, Ernestown, Addington, 2*l.* 10*s.*

NOTES BY JUDGES.—Numbers 8 and 9, (property of Mr J Pearson, Whitby,) are superior animals, but in consequence of their never having had calves, the Judges are of opinion that they do not come in the class of cows. Only four animals in this class found.

Best 2 year old heifer, Wm Spence, Kingston, 3*l.*; 2d do R McD Huffman, Ernesttown, Addington, 2*l.*; 3d do Wm Spence, Kingston,

Frontenac, 1*l.* 5*s.*; 4th do Henry Robinson, do, do, 15*s.*

Best 1 year old Heifer, R McD Huffman, Ernesttown, Addington, 2*l.* 10*s.*; 2d do H. McCaugherty, Pittsburgh, Frontenac, 1*l.* 10*s.*; 3d do do, do, do, 1*l.*; 4th do Henry Robinson, Kingston, do, 10*s.*

Best heifer calf (under one year,) J. Pearson, Whitby, 1*l.* 10*s.*

Extra Entries—Recommended, Robert Carson, Kingston 1*l.* 10*s.* for a pair of year old calves, twins.

CLASS IX.—FAT AND WORKING CATTLE, ANY BREED.

34 Entries.

Judges—James Wightman, Hastings; Wm. McMicking, Welland; Joseph Smith, Kent; John Gill, Peel; Charles Rundell, Dundas Co.

Best fat cow or heifer, W Robinson, Reach, 7*l.* 10*s.*; 2d do R Wade, jun, Cobourg, 5*l.*

Best yoke working oxen, John Sutherland, Kingston, Frontenac, 5*l.*; 2d do Colin McIntyre, Pittsburg, Frontenac; 3*l.*; 3d do Coleman Bristol, Ernesttown, Addington, 2*l.*

Best yoke of 3 year old steers, Hugh Rankin, Kingston Township, Frontenac, 4*l.*; 2d do Reuben Spooner, Kingston Township, Frontenac, 2*l.* 10*s.*; 3d do James Gibson, do, do, 1*l.* 10*s.*

Best team of oxen, not less than ten yoke, from one township, the property of any number of persons, Hugh Rankin, Kingston Township, 10*l.*

SHEEP.

CLASS X.—LEICESTERS.

128 Entries.

Judges—William Allan, Peel Co; Wm L Ewing; John Iles, Puslinch; S Clarke, Halton; Joseph Coulson; John Gilbert.

Best ram, two shears and over, James Petty, Hay, imported 1856, 12*l.*; 2d do Chris Walker, London, 2*l.* 10*s.*; 3d do James Dickson, Clarke, 1*l.*

Best shearling ram, Wm Miller, Pickering, 4*l.*; 2d do Jas Carruthers, Haldimand Township, 2*l.* 10*s.*; 3d do Jas Petty, Hay, 1*l.*

Best ram lamb, Jas Dickson, Clarke, Durham, imported June, 1856, 6*l.*; 2d do Christopher Walker, London, 1*l.*; 3d do do, do, 10*s.*

Best two ewes, two shears and over, James Dickson, Clarke, Durham, 4*l.*; 2d do George Miller, Markham, York, 3*l.*; 3d do Wm Miller, Pickering, Ontario, 1*l.* 10*s.*

Best two shearling ewes, Chris Walker, London, 3*l.*; 2d do Geo Miller, Markham, York, (imported June, 1856,) 2*l.*; 3d do do, do, 1*l.*

Best two ewe lambs, Wm Miller, Pickering, Ontario, 1*l.* 10*s.*; 2d do do, do, 1*l.*; 3d do Geo Miller, Markham, York, 10*s.*

CLASS XI—SOUTHDOWNS.

43 Entries.

Judges—John Kerr, Welland Co; Alex Alcorn, Cobourg; Lewis Davies, Peterboro.

Best ram, two shears and over, J Spencer, Whitby, 4*l.*; 2d do, do, do, 2*l.* 10*s.*; 3d do do, do, 1*l.*

Best shearling ram, J Spencer, Whitby, (imported June, 1856,) 12*l.*; 2d do Peter Davy, Bath, 2*l.* 10*s.*

Best ram lamb, Thomas A. Milne, Markham, 2*l.*; 2d do John Spencer, Whitby, 1*l*; 3d do do, do, 10*s.*

Best two ewes, two shears and over, Nathan Choat, Hope, 4*l.*; 2d do Thomas A. Milne, Markham, 3*l.*; 3d do John Spencer, Whitby, Ontario, 1*l.* 10*s.*

Best two shearling ewes, John Spencer, Whitby, Ontario, (imported June, 1856,) 6*l.*

Best two ewe lambs, Peter Davy, Bath, Addington, 1*l.* 10*s.*

CLASS XII—MERINOS AND SAXONS.

20 Entries.

Judges—John Kerr, Stamford; Lewis Davies, Peterboro; Alex Alcorn, Cobourg.

Best rams, two shears and over, Nathan Choat, Hope, 4*l.*; 2d do Jacob Rymal, Wentworth, 2*l.* 10*s*; 3d do Nathan Choat, Hope, 1*l.*

Best shearling ram, Nathan Choat, Hope, 4*l.*; 2d do Jacob Rymal, Barton, Wentworth, 2*l.* 10*s.*; 3d do do, do, do, 1*l.*

Best ram lamb, Nathan Choat, Hope, Durham, 2*l.*; 2d do do, do, do, 1*l.*

Best two ewes, two shears and over, Nathan Choat, Hope, Durham, 4*l.*; 2d do Jacob Rymal, Barton, Wentworth, 3*l.*; 3d do Nathan Choat. Hope, Durham, 1*l.* 10*s.*

Best two shearling ewes, Jacob Rymal, Barton, Wentworth, 3*l.*; 2d do Nathan Choat, Hope, Durham, 2*l.*; 3d do do, do, do, 1*l.*

Best two ewe lambs, Nathan Choat, Hope. 1*l.* 10*s.*; 2d do Jacob Rymal, Barton, 1*l.*; 3d do Nathan Choat, Hope, 10*s.*

CLASS XIII—COTSWOLDS.

28 Entries.

Judges—Wm Allan, W L Ewing, S Clarke, Joseph Coulson, John Gilbert, John Iles.

Best ram, two shears and over, Fred W Stone, Guelph, 4*l.*; 2d do W J Sloane, Fredericksburg, 2*l.* 10*s.*; 3d do Geo Miller, Markham, 1*l.*

Best shearling ram, Geo Miller, Markham, (imported June, 1856,) 12*l.*; 2d do Wm. Miller, Pickering, Ontario, 2*l.* 10*s.*

Best ram lamb, Fred W Stone, Guelph, 2*l.*; 2d do do, do, 1*l.*; 3d do W Miller, Pickering, Ontario, 10*s.*

Best two ewes, two shears and over, Fred W Stone, Guelph, 4*l.*; 2d do do, do, 3*l.*; 3d do Geo Miller, Markham, 1*l.*

Best two shearling ewes, Fred W Stone, Guelph, (imported July, 1856,) 6*l.*; 2d do do, do, do, 2*l.*; 3d do Wm Miller, Pickering, do, 1*l.*

Best two ewe lambs, Fred W Stone, Guelph, 1*l.* 10*s.*; 2d do do, do, 1*l.*; 3d do do, do, 10*s.*

CLASS XIV.—CHEVIOTS.

16 Entries.

Judges—Wm Allan, W L Ewing, S Clarke, Jos

Coulson, John Gilbert, John Iles.

Best ram, two shears and over, Jas Dickson, Clarke, Durham, (imported June, 1856,) 12*l.*; 2d do Wm Roddick, Hamilton Tp, 2*l.* 10*s.*; 3d do do, do, 1*l.*

Best shearling ram, Wm Roddick, Hamilton Tp, 4*l.*

Best ram lamb, Jas Dickson, Clarke, (imported June, 1856,) 6*l.*; 2d do Wm Roddick, Hamilton Tp, 1*l.*

Best two ewes, two shears and over, Wm Roddick, Hamilton Tp, 4*l.*; 2d do Jas Dickson, Clarke, 3*l.*

Best two shearling ewes, Wm Roddick, Hamilton Tp, 3*l.*

Best two ewe lambs, Jas Dickson, Clarke, Durham, (imported June, 1856,) 3*l.*; 2d do Wm Roddick, Hamilton Tp, 1*l.*

CLASS XV.—FAT SHEEP.

15 Entries.

Judges—John Kerr, Stamford; Lewis Davies, Peterboro'; Alex Alcorn, Cobourg.

Best two fat wethers, J Pearson, Whitby, 3*l.*; 2d do Chas Scott. do, 2*l.*; 3d do Ralph Wade, Jr. Cobourg, 1*l.*

Best two fat ewes, Chas Scott, Whitby, 3*l.*; 2d do Geo Miller, Markham, 2*l.*; 3d do John Hawkins, Wolfe Island, 1*l.*

PIGS.

CLASS XVI.—LARGE BREED PIGS.

21 Entries.

Judges—W Wallace, Geo Coldwell, John Atkinson.

Best boar, one year and over, Jas Durand, Kingston, 5*l.*; 2d do John Scott, Montreal, 3*l.*; 3d do Jas McCammon, Kingston, 2*l.*; 4th do Geo. Calvert, Ops, recommended.

Best breeding sow, one year and over, Wm Gibbard, Richmond, 3*l.*; 2d do Jas McCammon, Kingston, 2*l.*

Best boar, under one year, Richard Coates, Oakville, 3*l.*; 2d do County Hochelaga Society, C. E., 2*l.*; 3d do Richard Coates, Oakville, 1*l.*

Best sow, under one year, C A Jordison, Hope, 2*l.*; 2d do Jas McCammon, Kingston, 1*l.* 10*s.*; 3d do Richard Coates, Oakville, 1*l.*

CLASS XVII.—SMALL BREED PIGS.

71 Entries.

Judges—P Davy, C B Perry, David Tait.

Best boar, one year and over, Thos Briggs, Jr, Kingston, (imported from United States since last show,) 10*l.*; 2d do do, do, do, 3*l.*; 3d do Henry Sadleir, Cataroqui Bawn, Frontenac, 2*l.*

Best breeding sow, one year and over, Thos Briggs, Jr, Kingston, (imported from England since last exhibition) 6*l.*; 2d do do, imported from U. S. do, 2*l.*; 3d do John Hitchins, Amherst Island, Addington, 1*l.*

Best boar, under one year, Thos Briggs, Jr, Kingston, 3*l.*; 2nd do Henry Sadleir, do, 2*l.*; 3d do Fred W Stone, Guelph, 1*l.*

Best sow, under one year, Jas Durand, Kingston, 2*l.*; 2d do Henry Sadleir, do, 1*l.* 10*s.*; 3d do T A Corbett, do, 1*l.*

POULTRY.

CLASS XVIII.—POULTRY, &c.

246 Entries.

Judges—Alfred Perry, Montreal; D G Forbes, Whitby; E C Campbell, Niagara.

Best pair of white Dorkings, Hy M Briggs, Kingston, 1*l.*; 2d do Geo S Burrill, Cramahe, Northumberland, 10*s.*

Best pair of spangled Dorkings, Chas Skene, Simcoe Island, 1*l.*; 2d do Ed Hawkins, Port Hope, 10*s.*

Best pair of black Polands, Wm O'Reilly, Kingston, 1*l.*; 2d do Hy Briggs, do, 10*s.*

Best pair of white Polands, Wm O'Reilly, Kingston, 1*l.*; 2d do Hy Briggs, do, 10*s.*

Best pair of golden Polands, J C Ansley, Port Hope, 1*l.*; 2d do Jas John Whitehead, Kingston, 10*s.*

Best pair of game fowls, Geo S Burrill, Cramahe, 1*l.*

Best pair of buff Cochin China, Shanghai, Canton, or Bramah Pootra fowls, Jas Durand, Kingston, 1*l.*; 2d do James Lamb, London, 10*s.*

Best pair of black Cochin China, &c, Robert Hardinge, Kingston, 1*l.*; 2d do Edwin Hawkins, Port Hope, 10*s.*

Best pair of white Cochin China, &c., James Lamb, London, 1*l.*; 2d do Samuel Peters, London, 10*s.*

Best pair of gray Cochin China, Robt Hardinge, Kingston, 1*l.*; 2d do Henry Briggs, Kingston, 10*s.*

Best pair of black Spanish fowls, Charles Elliott, Cobourg, 1*l.*; 2d do Jos Lamb, London, 10*s.*

Best pair of Bolton greys, Henry Briggs, Kingston, 1*l.*

Best pair of Hamburg fowls, Henry Briggs, Kingston, 2d prize, 10*s.*

Best pair of Dominique, Edwin Hawkins, Port Hope, 1*l.*; 2d do do, do, do, 10*s.*

Best pair of feathered bantams, Sam Peters, London, 10*s.*; 2d do T Mulhall, Kingston, 5*s.*

Best pair of smooth bantams, Sam Peters, London, 10*s.*; 2d do Jos Lamb, London, 5*s.*

Best pair of turkeys white or coloured, Sam Peters, London, 2d prize, 10*s.*

Best pair of wild turkeys, Baron de Longueuil, Kingston, 2d prize, 10*s.*

Best pair of large geese, Jas Durand, Kingston, 1*l.*; 2d do Jos Lamb, London, 10*s.*

Best pair Bremen geese, Jos Lamb, London, 10*s.*

Best pair Chinese Geese, Jos Lamb, London, 1*l.*; 2d do Augustus Keefer, Chambly, C E, 10*s.*

Best pair of muscovy ducks, Jos Lamb, London, 1*l.*; 2d do do, do, 10*s.*

Best pair common ducks, Jos Lamb, London, 1*l.*; 2d do Baron de Longueuil, Kingston, 10*s.*

Best pair of Aylesbury ducks, Charles Elliot, Cobourg, 1*l*; 2d do Sam Peters, London, 10*s.*

Best pair of Poland ducks, Jos Lamb, London, 1*l.*; 2d do Henry M Briggs, Kingston, 10*s.*

Best pair of Guinea fowls, Henry Briggs, Kingston, 1*l.*

Best collection of pigeons, Duncan G Forbes, Whitby, 1*l.*; 2d do Chas Skene, Simcoe Island, Frontenac, 10*s.*

Best lot of poultry in one pen owned by the exhibitor, James John Whitehead, Kingston, 2*l.*

Best collection of poultry entered in the various classes by one exhibitor, Henry Briggs, Kingston, 2*l.*

Best pair of rabbits—1st, Henry M Briggs, Kingston, 10*s.*; 2d. H M Rogers, Kingston, 5*s.*

Best lot of rabbits—1st, Henry M Briggs, Kingston, 1*l.*; 2d, Henry M Rogers, Kingston, 10*s.*

Extra prizes of 10*s.* each to J S Whitehead, Kingston, cage of chickens; J C Ansley, Port Hope, golden Polands; Kenneth McKenzie, Kingston, peacock and hen; A Keefer, Chambly, brood of Chinese geese.

Extra prizes of 5*s.* each, to H M Briggs, Kingston, pair Japan fowls; J J Whitehead, Kingston, pair black Labrador ducks; do do, pair white Leghorns; Wm Byram, private, 9th regiment, Kingston, Crimean fowls, cock and four hens; do do, hen and thirteen chickens; Jos Lamb, London, Rouen ducks; H M Briggs, Kingston, pair wild geese; Samuel Peters, London, Rouen ducks.

NOTE BY JUDGES.—The Judges upon Poultry are very much pleased with the large and varied collection, and with the zeal of breeders in introducing foreign varieties with a view to improve the stock. The collection is superior to those exhibited during preceding years; but the Judges would suggest to local committees acting hereafter, that a means of access to all the coops; by a convenient door to each, should be provided, so that the birds may be more thoroughly examined.

AGRICULTURAL PRODUCTIONS.

CLASS XIX.—GRAINS, SEEDS, &c.

447 Entries.

Judges—P F Caniff, Belleville; E C Fisher, Etobicoke; Wm Applegarth, Wentworth, Alex Ferguson, Glengary; Charles Whitlaw, Paris.

The Canada Company's Prize for Wheat.

For the best 25 bushels of fall wheat, the produce of Canada-West, being the growth of the year 1856. The prize awarded to the actual grower only of the wheat, which is given up to and becomes the property of the Association, for distribution to the County Societies for seed, Russell Smith, Burford, Brant, (weight 66 lbs,) 25*l.*

2d do, by the Association, S Scott, Clarke, Durham, (weight 64½ lbs,) 10*l.*; 3d do P R Palmer, Thurlow, Hastings, (weight 62½ lbs,) 5*l.*

[The winners of the 2d and 3d prizes to retain their wheat.]

Best 2 bushels of winter wheat, C Dollar, Fredericksburg, Lennox, (weight 64 lbs,) 2*l.* 10*s.*; 2d do Russel Smith, Burford, Brant, (weight 63 lbs,) 1*l.* 15*s.*; 3d do P R Palmer, Thurlow Hastings, (weight 62 lbs,) 1*l.* 5*s.*

Best two bushels spring wheat, Christopher Anderson, Cobourg, 2*l.* 10*s.*; 2d do John Hawkins, Wolfe Island, 1*l.* 15*s.*; 3d do Joshua Sisley, Scarboro' 1*l.* 5*s.*

Best two bushels of barley [two rowed], Christopher Anderson, Cobourg, 1*l.* 10*s.*; 2d do James Logan, Montreal, 1*l.*; 3d do W C Fretz; Ernesttown, 10*s.*

Best two bushels barley [six rowed], Daniel Campbell, Charlottenburg, Glengarry, 1*l.* 10*s.*; 2d do Hiram Tubbs, Hallowell, 1*l.*; 3d do Richard Williams, Ernesttown, 10*s.*

Best two bushels rye, Wm Beattie, Yonge, Leeds. 1*l.* 10*s.*: 2d do George Patterson, Kingston Tp, 1*l.*; 3d do Joseph Davidson, Kingston Tp, 10*s.*

Best two bushels of oats, white, Russell Smith, Burford, Brant, 1*l.* 10*s.*; 2d do Daniel Campbell, Charlottenburg, Glengary, 1*l.*; 3d do James Patton, Scarboro, 10*s.*

Best two bushels of oats, black, W C Fretz, Ernesttown, 1*l.* 10*s.*

Best two bushels of field peas, Henry Platt, Hallowell, P E, 1*l.* 10*s.*; 2d do D Campbell, Charlottenburg, Glengarry, 1*l.*; 3d do Sam D Purdy, Ernesttown, 10*s.*

Best two bushels of marrowfat peas, John Gilbert, Belleville, 1*l.* 10*s.*; 2d do James Durand, Kingston, 1*l.*; 3d do John Gilbert, Belleville, 10*s.*

Best two bushels tares, Joseph Davidson, Kingston Tp, 1*l.* 10*s.*

Best bushel of white field beans, John Eagleson, Hamilton Tp, 1*l.*; 2d do James Durand, Kingston, 15*s.*; 3d do Thomas Briggs, junior, Kingston, 10*s.*

Best two bushels yellow Indian corn, H Platt, Hallowell, P E, 1*l.* 10*s.*; 2d do R Warren, Niagara, 1*l.*

Best bushel of timothy seed, P R Palmer, Thurlow, 2*l.*; 2d do do, do, 1*l.* 10*s.*; 3d do Wm Magee, Lanark, 1*l.*

Best bushel of clover seed, P R Palmer, Thurlow, 2*l.*; 2d do S T Casey, Thurlow, 1*l.* 10*s.*; 3d do N A Briscoe, Ernesttown, 1*l.*

Best bushel flax seed, D Campbell, Charlottenburg, Glengarry, 1*l.* 10*s.*; 2d do Wm Beattie, Yonge, Leeds, 1*l.*; 3d do W C Fretz, Ernesttown, Addington, 10*s.*

Best Swedish turnip seed, from transplanted bulbs, not less than 20 lbs, Geo Roddick, Cobourg, 1*l.* 10*s.*; 2d do do, do, 1*l.*; 3d do, H Girouard, Hamilton City, 10*s.*

Best 12 lbs field carrot seed, James Fleming, Toronto City, 1*l.* 10*s.*

Best 12 lbs yellow mangel wurzel seed, James Fleming, Toronto City, 1*l.* 10*s.*

Best bale of hops, not less than 112 lbs, Platt Williams, Bloomfield, P E, 5*l.*; 2d do Joseph Mills, Bloomfield, P E, 3*l.*; 3d do Thomas Bissett, Prescott, 2*l.*

EXTRA ENTRIES.—RECOMMENDED.—William Plewes, Marysburg, P E, samples of 14 different kinds of peas, viz:—Early Kent, Prince Albert, early white, Irish marrowfat, early Emperor, dimple blossom, Bishop's early dwarf, Champion of England, early France, early Washington, fall white sugar peas, Ruelle Michaux, early Dutch Michaux, late Missouri marrowfats.

The following samples of wheat, presented by the Canadian Commissioners at the Paris Exhibition to the Board of Agriculture, are noticed as of superior quality, viz:—30 varieties English, 15 do Algerian, 12 do Spanish, 8 do Australian, 1 do Egyptian, 4 do Scotch.

CLASS XX.—ROOTS AND OTHER FIELD CROPS.

164 Entries.

Judges—D Campbell, Glengarry; P R Palmer, Thurlow; Samuel Matherall, Victoria Co; Wm Millar, Bruce Co.

Best bushel pink eye potatoes, M Kerr, Hungerford, Hastings, 15*s.*; 2d do Reuben Spooner, Kingston Tp, 10*s.*; 3d do Baron de Longueuil, Simcoe Island, 5*s.*

Best bushel of any other sort, John Duff, Kingston, 15*s.*; 2d do Wm Church, Fredericksburg, 10*s.*; 3d do Calvin W Miller, Ernesttown, 5*s.*

Best bushel of Swede turnips, F W Stone, Guelph, 15*s.*; 2d do Fred W Stone, Guelph, 10*s.*; 3d do Baron de Longueuil, Kingston, 5*s*

Best bushel of white globe turnips, Fred W Stone, Guelph, 15*s*; 3d do John Duff, Kingston, 5*s.*

Best bushel of Aberdeen yellow turnips, Fred W Stone, Guelph, 15*s.*; 2d do do, do, 10*s.*

Best 20 roots red carrots, John Duff, Kingston, 15*s*; 2d do John Gordanier, Ernesttown, 10*s.*; 3d do Baron de Longueuil, Simcoe Island, 5*s.*

Best 20 roots white or Belgian carrots, Joshua Sisley, Scarboro', 15*s.*; 2d do Glover Bennett, Cobourg, 10*s.*; 3d do Baron de Longueuil, Simcoe Island, 5*s.*

Best 12 roots mangel Wurzel (long-red,) Josh Sisley, Scarboro', 15*s.*; 2d do Thomas Thompson, Williamsburg, Dundas, 10*s.*; 3d do James Logan, Montreal, 5*s.*

Best 12 roots yellow globe mangel wurzel, Glover Bennett, Cobourg, 15*s.*; 2d do James Logan, Montreal, 10*s.*; 3d do John Gilmour, Quebec, 5*s.*

Best 12 roots long yellow mangel wurzel, James Fleming, Toronto, 15*s.*

Best 12 roots of khol rabi, John Duff, Kingston, 10*s.*

Best 12 roots of sugar beet, J Gilbert, Belleville, 15*s.*; 2d do Joshua Sisley, Scarboro, 10*s.*; 3d do James Logan, Montreal, 5*s.*

Best 20 roots of parsnips, J Duff, Kingston, 15*s.*; 2d do James Logan, Montreal, 10*s.*

Best 2 large squashes for cattle, Baron de Longueuil, Kingston, 15*s.*; 2d do John Duff, Kingston, 10*s.*; 3d Richard Williams, Ernesttown, 5*s.*

Best 2 mammoth field pumpkins, John Gilmour, Quebec, 15*s*; 2d do Charles Skene, Simcoe Island, 10*s.*; 3d do John Duff, Kingston, 5*s.*

Best 4 common yellow field Pumpkins, J Durand, Kingston, 15*s.*; 2d do Reuben Spooner, Kingston, 10*s.*

Best 28 lbs broom corn brush, James W Cull, Storrington, 1*l.*

The Canada Company's Prize for Flax.

Best 112 lbs. flax, Daniel Campbell, Charlottenburg, Glengarry, 6*l.*

The Canada Company's Prize for Hemp.

Best 112 lbs. hemp—no entries.

Extra prizes to Fred W Stone, Guelph, for red round Turnips, 10*s.*, for red globe mangel Wurzel, 10*s.*, and for green round turnips, 10*s.*; to J D Purdy, Ernesttown, for a large squash, 10*s.*; and to H. Girouard, Hamilton, for 20 lbs. Aberdeen turnip seed, 1*l.*; Richard Williams, Ernesttown, 10 samples early potatoes, 10*s.*

HORTICULTURAL PRODUCTIONS.

CLASS XXI.—FRUIT.

275 Entries.

Judges—Dr Reynolds, Brockville; W B Crew, Toronto; S J Brown, Niagara; S J Lyman, Montreal.

Best 20 varieties of apples, named (six of each,) Wm Beattie, Yonge, Leeds, 15*s.*; 2d do James Cameron, Brockville, 10*s.*; 3d do Wm Ferguson, Pittsburg, 5*s.*

Best 12 table apples, named (fall sort,) Baron de Longueuil, Kingston, 10*s.*; 2d do E C Campbell, Niagara, 7*s.* 6*d.*; 3d do George Gardiner, Lynn, Leeds, 5*s.*

Best 12 table apples named (winter sort,) Jas Wadsworth, Kingston, 10*s.*; 2d do Reuben Spooner, Kingston, 7*s.* 6*d.*; 3d do James Wadsworth, Kingston, 5*s.*

Best 12 baking apples, named James Morton, Kingston, 10*s.*; 2d do J D Humphreys, Toronto City, 7*s.* 6*d.*; 3d do James Cameron, Brockville, 5*s.*

Best 12 table pears, named (fall sort) E C Campbell, Niagara, 10*s.*; 2d do do, do, 7*s.* 6*d.*; 3d do Rev Vicar General McDonell, Kingston, 5*s.*

Best 12 table pears, named (winter sort,) E C Campbell, Niagara, 10*s.*; 2d do A Harris, Rice Lake, 7*s.* 6*d.*; 3d do J P Lovekin, Newcastle, 5*s.*

Best 12 plums, named (desert,) Baron de Longueuil, Kingston, 10*s.*; 2d do do, do, 7*s.* 6*d.*; 3d do James Cameron, Brockville, 5*s.*

Best 12 baking plums, named, Baron de Longueuil, Kingston, 10*s.*; 2d do James Cameron, Brockville, 7*s.* 6*d.*; 3d do James Wadsworth, Kingston, 5*s.*

Best quart of damsons (English,) Thomas Wilson, Kingston, 10*s.*

Best 6 peaches, grown in hot-house, James Cameron, Brockville, 10*s.*

Best 12 peaches, grown in open air, named, James Cameron, Brockville, 10*s.*; 2d do E C Campbell, Niagara, 7*s.* 6*d.*; 3d do H Girouard, Hamilton, 5*s.*

Best 20 varieties of peaches, grown in open air (3 of each,) E C Campbell, Niagara, 15*s.*; 2d do H Girouard, Hamilton, 10*s.*; 3d do E C Campbell, Niagara, 5*s.*

Best 3 clusters of grapes, (hot-house) Mr Lunn, Montreal. 10*s.*

Best 3 cluster black Hamburg, (hot-house) Mr Lunn, Montreal, 10*s.*; 2d do James Fleming, Toronto, 7*s.* 6*d.*

Best 4 clusters black grapes, grown in open air, Rev. J. Brenner, Hamilton, 10*s.*; 2d do W Beattie, Yonge, Leeds, 7*s.* 6*d.*; 3d do E C Campbell, Niagara, 5*s.*

Best 4 clusters white grapes, grown in open air, Baron de Longueuil, Kingston, 10*s.*; 2d do T S Wood, Belleville, 7*s.* 6*d.*; 3d do Henry Sadleir, Kingston, 5*s.*

Best 4 clusters grapes, of any other sorts, T S Wood, Belleville, 10*s.*; 2d do Baron de Longueuil, Kingston, 7*s.* 6*d.*

Best and heaviest 2 bunches of grapes, Mr. Lunn, Montreal, 10*s.*; 2d do James Fleming, Toronto City, 7*s.* 6*d.*; 3d do Charles Arnold, Paris, 5*s.*

Best collection of grapes, grown in open air, 2 clusters of each sort, Charles Arnold, Paris, 15*s.*; 2d do James P Lovekin, Clarke, 10*s.*; 3d do do, do, 5*s.*

Best water-melon, Edwin Hawkins, Port Hope, 10*s.*; 2d do do, do, 7*s.* 6*d.*

Best musk-melon, of any sort, James Fleming, Toronto, 10*s.*; 2d do Charles Skene, Simcoe Island, 7*s.* 6*d.*; 3d do H Girouard, Hamilton, 5*s.*

The following are extra prizes awarded in this department:—J D Humphreys, Toronto, for basket white grapes, open air, 10*s.*—for red currants, 5*s.*; Charles Arnold, Paris, for 12 nectarines, 10*s.*; T Wilson, Kingston, sample currants, 5*s.*; George Parish, Ogdensburg, N Y, collection of vegetables and fruits, containing several new varieties, diploma and 15*s.*; C Bristol, Bath, basket of grapes, 10*s.*; Alfred Harris, Rice Lake, citron, 5*s.*; H Girouard, Hamilton, 5*s.*; John Smith, Montreal, basket of grapes, 20*s.*; Montreal Horticultural Society, grapes, 20*s.*, 4 varieties of peaches, 5*s.*, nectarines, 15*s.*, 16 varieties of apples, 10*s.*, pears, 10*s.*, 16 sorts of pears, 10*s.*, 38 sorts of apples, 20*s.*, 4 sorts of peaches, 10*s.*; Mr Lunn, for apples, 5*s.*; specimens of peaches from Henry Jones, Brockville, particularly fine, 10*s.*; Mr Grant, Kingston, vase of wild flowers, recommended 10*s.*

CLASS XXII.—GARDEN VEGETABLES.

288 Entries.

Judges—Thomas S Wood, Sidney, William Mundie, Hamilton; William Gordon, Toronto.

Best 12 roots of salsify, Baron de Longueuil, Kingston, 10*s.*; 2d do do, do, 7*s.* 6*d.*; 3d do John Duff, Kingston, 5*s.*

Best 4 heads Brocoli, J D Humphreys, Toronto, 10*s.*; 2d do John Duff, Kingston, 7*s.* 6*d.*; 3d do James Wadsworth, Kingston, 5*s.*

Best 4 heads cauliflower, J D Humphreys, Toronto, 10*s.*; 2d do Chas Skene, Simcoe Island, 7*s.* 6*d.*; 3d do Edwin Hawkins, Port Hope, 5*s.*

Best 4 heads cabbage (summer), John Gilbert, Belleville, 10*s.*; 2d do John Duff, Kingston, 7*s.* 6*d.*

Best 4 heads cabbage (winter), J D Humphreys, Toronto, 10*s.*; 2d do T S Wood, Belleville, 7*s.* 6*d.*; 3d do Rev Vic Gen McDonell, Kingston, 5*s.*

Best 4 sorts winter cabbage, including savoys, 2 of each sort, J D Humphreys, Toronto, 15*s.*; 2d do John Duff, Kingston, 10*s.*: 3d do Baron de Longueuil, 5*s.*

Best 4 heads red cabbage, Rev Vic Gen McDonell, Kingston, 15*s.*; 2d do John Gilmour, Quebec, 10*s.*; 3d do E C Campbell, Niagara, 5*s.*

Best 12 carrots for table, long red, Charles Skene, Simcoe Island, 10*s.*; 2d do James Morton, Kingston, 7*s.* 6*d.*; 3d do John Duff, Kingston, 5*s.*

Best 12 early horn carrots, Charles Skene, Simcoe Island, 10*s.*; 2d do John Duff, Kingston, 7*s.* 6*d.*; 3d do Baron de Longueuil, Kingston, 5*s.*

Best 12 table parsnips, John Duff, Kingston, 10*s.*; 2d do Baron de Longueuil, Kingston, 7*s.* 6*d.*; 3d do James Durand, Kingston, 5*s.*

Best 6 roots white celery, James Morton, Kingston, 10*s.*; 2d do John Duff, Kingston, 7*s.* 6*d.*; 3d do Charles George, Portsmouth, 5*s.*

Best 6 roots of red celery, J Morton, Kingston, 10*s.*; 2d do John Duff, Kingston, 7*s.* 6d.; 3d do Baron de Longueuil, Kingston, 5*s.*

Best 12 capsicums, James Morton, Kingston, 10*s.*; 2d do Baron de Longueuil, Kingston, 7*s.* 6d.; 3d do Charles Skene, Simcoe Island, 5*s.*

Best collection capsicums, J D Humphreys, Toronto, 10*s.*; 2d do James Fleming, Toronto, 7*s.* 6*d.*; 3d do Baron de Longueuil, Kingston, 5*s.*

Best 6 egg plants, purple, James Morton, Kingston, 10*s.*; 2d do Baron de Longueuil, do, 7*s.* 6*d.*; 3d do John Duff, do, 5*s.*

Best 12 tomatoes, Baron de Longueuil, Kingston, 10*s.*; 2d do James Morton, do, 7*s.* 6*d.*; 3d do Baron de Longueuil, do, 5*s.*

Best assorted collection of tomatoes, 6 of each sort, James Morton, Kingston, 15*s.*; 2d do H Girouard, Hamilton, 10*s.*; 3d do J D Humphreys, Toronto, 5*s.*

Best 12 blood beets, Baron de Longueuil, Kingston, 10*s.*; 2d do J D Humphreys, Toronto, 7*s.* 6*d.*; 3d do M Kerr, Hungerford, 5*s.*

Best peck of white onions, Baron de Longueuil, Kingston, 10*s.*; 2d do James Morton, do, 7*s.* 6*d.*; 3d do Baron de Longueuil, do, 5*s.*

Best peck of yellow onions, Baron de Longueuil, Kingston, 10*s.*; 2d do James Morton, do, 7*s.* 6*d.*; 3d do Baron de Longueuil, do, 5*s.*

Best peck of red onions, Charles Skene, Simcoe Island, 10*s.*; 2d do Baron de Longueuil, Kingston, 7*s.* 6*d.*; 3d do James Morton, do, 5*s.*

Best 12 white turnips, table, (a sample not numbered,) marked first prize, 10*s.*; 2d do John Duff, Kingston, 7*s.* 6*d.*; 3d do R J Cartwright, do. 5*s.*

Best twelve yellow turnips, table, F W Stone, Guelph, 10*s.*; 2d do Charles Skene, Simcoe Island, 7*s.* 6*d.*

Best 12 ears sweet corn, Chas George, Portsmouth, 10*s.*; 2d do John Duff, Kingston, 5*s.*

Best and greatest variety of early potatoes, half peck of each sort, named, James Durand, Kingston, 15*s.*; 2d do Chas Skene, Simcoe Island, 10*s.*; 3d do Reuben Spooner, Kingston, 5*s.*

Best 4 squashes, table, John Duff, Kingston, 10*s.*; 2d do Baron de Longueuil, do, 7*s.* 6*d.*; 3d do R J Cartwright, do, 5*s.*

Best and greatest variety of vegetables, each kind named, John Duff, Kingston, 10*s.*; 2d do Baron de Longueuil, do, 7*s.* 6*d.*; 3d do Charles Skene, Simcoe Island, 5*s.*

The following were extras recommended in this department:—J D Humphreys, Toronto, brace cucumbers, 5*s.*; H Girouard, Hamilton, pickling onions, Canada coffee, 5*s.*; Alfred Harris, Rice Lake, vegetable marrow; Charles Skene, Simcoe Island, 4 Savoy cabbages, 100 pods green peas, 1 peck Lima beans; A Harris, Rice Lake, leeks, (highly); Baron de Longueuil, Kingston, curled kail, Brussels Sprouts, large case knife beans; E C Campbell, Niagara, white egg plants. Worthy of notice, a select variety of roots and vegetables, from Normal School, Toronto.

Montreal Horticultural Society, collection vegetables, recommended, 1*l.* 10*s.*

NOTE BY JUDGES.—We would beg leave to state, that in the vegetable department of Horticulture, allotted to us to judge, we find the roots and vegetables very good, generally, considering the dryness of the past season.

CLASS XXIII.—PLANTS AND FLOWERS.

61 Entries.

Judges—Dr Reynolds, Brockville; W B Crew, Toronto; S J Brown, Niagara; S J Lyman, Montreal.

Best 12 dahlias, named, J Young, Montreal, 10*s.*

Best and largest collection of dahlias, James Morton, Kingston, 1*l.*; 2d do J Young, Montreal, 10*s.*; 3d do Montreal Horticultural Society, 7*s.* 6*d.*

Best bouquet of cut flowers—none worthy of a prize.

Best collection of green-house plants, not less than 12 specimens, James Morton, Kingston, 2d prize, 1*l.* 10*s.*

Best 12 pansies, Montreal Horticultural Society, 10*s.*

Best 6 fuschias, in flower, James Morton, Kingston, 10*s.*

Best collection of annuals, in bloom, E C Campbell, Niagara, 10*s.*; 2d do James Fleming, Toronto, 7*s.* 6*d.*

Best 6 cockscombs, Montreal Horticultural Society, 10*s.*; 2d do E C Campbell, Niagara, 7*s.* 6*d.*; 3d do do, do, 5*s.*

Best collection China asters, Montreal Horticultural Society, 10*s.*; 2d do Baron de Longueuil, Kingston, 7*s.* 6*d.*; 3d do J Fleming, Toronto, 5*s.*

Best collection of 10 weeks' stock, H Girouard, Hamilton, 2d prize, 7*s.* 6*d.*

Best floral ornament or design, James Morton, Kingston, 1*l.*

Best collection of verbenas, not less than 12 varieties, James Fleming, Toronto, 15*s.*; 2d do Jas P Lovekin, Clarke, 10*s.*; 3d do John Duff, Kingston, 5*s.*

Best collection of native plants, dried and named, Mrs C P Trail, Rice Lake, 2*l.* 10*s.*; 2d do Miss Barker, Kingston, 1*l.*

Best specimen of ornamental rustic work for the garden, James Morton, Kingston, 1*l.*

The following are the entries awarded extra prizes in this department:—James Wadsworth, Kingston, for plant in flower, 5*s.*; H Girouard, Hamilton, for hybrid roses, 5*s.*; collection of roses, 70 kinds, 10*s.*; 12 carnations, 5*s.*; Dr. Reynolds, Brockville, collection of flower seeds, diploma and 10*s.*; Baron de Longueuil, Kingston, seedling pansy, 5*s.*; Horticultural Society, Montreal, garland, 10*s.*; phlox, collection, 10*s.* Worthy of mention, collection of annuals, from Normal School, Toronto;--collection of Canadian grown vegetable seeds; also, a very extensive and rare collection of garden, field, and flower seeds, imported, with a most complete assortment of garden tools, exhibited by Mr James Fleming, of Toronto.

CLASS XXIV.—DAIRY PRODUCTS, SUGAR, PROVISIONS, &C.

206 Entries.

Judges—Charles Girvin, Huron County; Arthur Smith, Brant County; Adam Dodge, Oxford.

Best firkin of butter, not less than 56 lbs, George Gardiner, Lynn, 2*l.* 10*s.*; 2d do James Nimmo, Kingston, 1*l.* 10*s.*; 3d do Charles Gardiner, Yonge, 1*l.*

Best cheese, not less than 30 lbs, Simeon Cass, Hawkesbury, 2*l.* 10*s.*; 2d do Hiram Walker, Union Square, 1*l.* 10*s.*; 3d do P R Palmer, Thurlow, 1*l.*; 4th do discretionary, Daniel Gilbert, Sophiasburg, 10*s.*

Best 2 Stilton cheese, not less than 14 lbs each, R Wade, Jr, Cobourg, 2*l.* 10*s.*; 2d do do, do, 1*l.* 10*s.*; 3d do Samuel T Casey, Thurlow, 1*l.*

Best butter, not less than 20 lbs, in firkins, crocks, or tubs, Nelson Lapum, Ernestown, 1*l.* 10*s.*; 2d do Isaac Minaker, Marysburg, Prince Edward, 1*l.*; 3d do Richard Williams, Ernesttown, Addington, 10*s.*

Discretionary prize for butter done up in rolls, Thomas Clyde, Kingston, 1*l.*

Best 30 lbs maple sugar, M Kerr, Hungerford, 1*l.*; 2d do Hiram Tubbs, Hallowell, 10*s.*

Best starch. Hiram Tubbs, Hallowell, 15*s.*

Best soaps, (collection assorted,) G. Carey, Toronto, 15*s.*

Best candles (collection,) Wm Tubbs, Hallowell, 15*s.*

Best 6 kinds of preserves, John Gilbert, Belleville, 15*s.*

Best confectionery, Henry Dumble, Kingston, 1*l.*

Best barrel of flour, Andrew McNaughton, Newcastle, 1*l.* 10*s.*; 2d do H Daniels, Brooklin, 1*l.*

Best honey, in the comb, not less than 10 lbs, P R Palmor, Thurlow, 15*s.*; 2d do do, John Asselstine, Jr, Ernesttown, Addington, 10*s.*; 3d do do, Wm Beattie, Yonge, Leeds, 5*s.*

Best jar of clear honey, G Gardiner, Lynn, 1*l.*; 2d do G Miller, Markham. 10*s.*; 3d do C Gardiner, Yonge, 5*s.*

Essential oils, Friend O Payne, Hillier, 15*s.*

Extra Prizes Awarded.—John Nasmith, Toronto, for Abernethy biscuit, wine biscuit, Elgin biscuit, cabin biscuit, crackers, soda biscuit, diploma and 1*l.* 10*s.*; A W Craig, Kingston, biscuits, 10*s.*; Lyman & Savage, Montreal, oil cake, highly recommended; Matthew Rourke, Kingston, barrel of potash, recommended, prize of 10*s.*

DOMESTIC MANUFACTURES.

CLASS XXV.—AGRICULTURAL IMPLEMENTS.

175 Entries.

Judges—J W Hough, Brockville; Jas Breakenridge, Wm McDougall, Toronto; Thomas Briggs, Kingston; Samuel Peters, London; Samuel Clarke, Halton.

Best wooden plough, Isaac Modeland, Brampton, Peel, 2*l.* 10*s.*; 2d do J Bingham, Norwich, 1*l.* 10*s.*; 3d do Jas McSherry, of St David's, 1*l.*

Best iron plough, James Jeffry, Petite Cote, Montreal, 2*l.* 10*s.*; 2d do James Paterson, Montreal, 1*l.* 10*s.*; 3d do John Gartshore, Dundas, 1*l.*

[The ploughs were tested in a field, on the Tuesday, by a Committee appointed for the purpose, at the Exhibition; ease of draught and efficiency of work being considered.]

Best pair of harrows, E Wilmot, Kingston, 1*l.* 10*s.*; 2d Charles Skene, Simcoe Island, 1*l.*; 3d do James Jeffry, Petite Cote, Montreal, 10*s.*

Best fanning mill, J. Telfer & Sons, C E 1*l.* 10*s.*; 2d do D Coon, Prescott, 1*l.*; 3d do J Telfer & Sons, C E 10*s.*

Best horse-power thrasher and separator, H A Massey, Newcastle, 5*l.*

Note by Judges.—The Judges wish to express their admiration of the style in which this machine is got up.

Second best horse-power thrasher and separator, W Johnston & Co, Montreal, 3*l.*; 3d do Chas Joyner, Loughboro', 2*l.*

Note by Judges.—The Judges would recommend, that hereafter the two horse-power machines should be in a separate class.

Best grain drill, James Atkinson, Vaughan, 3*l.*

Best straw-cutter, D McVickers, London, 1*l.*; 2d do G Millar & Co, Perth, Lanark, 15*s.*

Best smut machine, John Gartshore, Dundas, Wentworth, 1*l.* 10*s.*

Best corn and cob crusher, A Millar, Chatham, Kent, 1*l.*

Note by Judges.—We consider this an excellent machine, deserving the attention of all farmers who raise stock extensively.

Best clover cleaning machine, R. McD Huffman, Ernesttown, 2d prize, 2*l.*

Best cider mill and press, Levi Howell, Ancaster, 3*l.*

Best cheese press, J Telfer & Sons, C E, 2*l.* 2d do John Gilbert, Belleville, 1*l.* 10*s.*

Best two-horse waggon, Nelson Lapum, Ernesttown, 3*l.*; 2d do Samuel D Purdy, Ernesttown, 2*l.*

Best one-horse light market waggon, Kempshall & Shuttleworth, Weston, York, 2*l.* 10*s.*; 2d do Samuel Lake, Newburgh, 2*l.*; 3d do Reuben Spooner, Kingston Tp, 1*l.*

Best horse cart, James Jeffrey, Petite Cote, Montreal, 1*l.* 10*s.*; 2d do James Nimmo, Kingston, 1*l.*

Best horse rake, Jas Niblock, Brockville, Leeds, 1*l.*; 2d do Salem Eckhardt, Markham, 15*s.*; 3d do J. Telfer & Sons, C E, 10*s.*

Best metal roller, H A Massey, Newcastle, 2*l.* 15*s.*; 2d do John Helm, Jr, Port Hope, 2*l.*

Best stump extractor, James Gibson, Kingston, 2d prize, 15*s.*

Best reaping machine, H C & H D Johnston, Toronto Tp, 5*l.*; 2d do John Helm, Jr, Port Hope, 3*l.*; 3d do H A Massey, Newcastle, 2*l.*

Best mowing machine, H A Massey, Newcastle, 5*l.*; 2d do John Helm, Jr, Port Hope, 3*l.*; 3d do Henry Going, Wolfe Island, 2*l.*

Best combined mower and reaper, R & R S Patterson, Belleville, 5*l.*; 2d do J Walton & Co, Holland Landing, 3*l.*; 3d do H A Massey, Newcastle, 2*l.*

Best potato digger, Salem Eckhardt, Markham, 15*s.*.

Note by Judges.—Entry No 2 (by John Lent, Cobourg,) an expensive and complicated machine, and in our opinion not worthy of a prize, until its practicability has been tested, and its machinery simplified.

Best thistle-extractor, R Lownsberry, Grimsby, 10*s.*

Best field or two-horse cultivator, A C Bruce, Glenmorris, Brant, 3*l.*; 2d do do, do, 2*l.*; 3d do Salem Eckhardt, Markham, 1*l.* Worthy of notice, Henry Going, Wolfe Island.

Best horse hoe, or single horse cultivator, H

A Massey, Newcastle, 1*l.*; 2d do R Lownsberry, Grimsby, 15*s.*

Best brick making machine, Daniel Gould, Napanee, Lennox, 2*l.* 10*s.*

Best 6 hay rakes, Thos Drummond & Co, Kingston, 10*s.*; 2d do Jacob Huffman, Camden East, Lennox, 7*s.* 6*d.*

Best 6 manure forks, D F Jones & Co, Gananoque, 15*s.*; 2d do Thos Drummond & Co, Kingston, 10*s.*

Best 6 hay forks, Thos Drummond & Co, Kingston, 15*s.*; 2d do D F Jones & Co, Gananoque, 10*s.*

Best 6 scythe snaiths, Thos Drummond & Co, Kingston, 15*s.*; 2d do Hiram Alford, Bastard, Leeds, 10*s.*

Best ox-yoke and bows, Edwin Chown, Kingston, 10*s.*; 2d do Jacob Huffman, Camden East, 5*s.*

Best grain cradle, Thos Drummond & Co, Kingston, 10*s.*; 2d do Hiram Alford, Bastard, Leeds, 5*s.*

Best 6 iron shovels, D F Jones & Co, Gananoque, 15*s.*

Best 6 spades, D F Jones & Co, Gananoque, 15*s.*

Best 6 steel hoes, D F Jones & Co, Gananoque, 15*s.*

The President, Baron de Longueuil's prize of 15*l.* for the best labor-saving agricultural implement or machine, awarded to R & R S Patterson, of Belleville, for a combined mower and reaper, being the same to which the first prize was awarded in section 29, 15*l.*

Extra prizes in this department:—3*l.* to D Conklin, Storrington, Frontenac, for horse-power thrashing machine; 1*l.* 10*s.* to Salem Eckhardt, Markham, for potato and corn planter; 10*s.* to Calvin Miller, Ernesttown, for corn sheller; 1*l.* to Joseph Conolly, Kingston, for two horse thrashing machine; 2*l.* to James Jeffrey, Petite Cote, Montreal, for double mould board plough; 1*l.* to D F Jones & Co, Gananoque, for case of implements; 15*s.* to do, for 6 steel grain scoops; 10*s.* to Jacob Huffman, Camden East, for thistle fork; 1*l.* to R Lounsbury, Grimsby, for corn planter; 1*l.* to James Patterson, Montreal, for double mould plough.

CLASS XXVI.—LEATHER AND FURS.

67 Entries.

Judges—David Wilson, Chatham; John L Dolson, Chatham; Geo Fanning, Hastings.

Best saddle and bridle, John Wilton, Kingston, 1*l.*; 2d do do, do, 15*s.*

Best set of farm harnesss, John Wilton, Kingston, 1*l.* 10*s.*

Best set of pleasure harness, John Wilton, 1*l.* 10*s.*; 2d do —— Irwin, Montreal, 1*l.*

Best side of sole leather, M W Strange, Kingston, 15*s.*

Best side of upper leather, John Macdonald, Baltimore, Northumberland, 15*s.*; 2d do do, do, 10*s.*; 3d do do, do, 5*s.*

Best kip skin, R J Minnes, Kingston, 15*s.*; 2d do J Miller, Picton Tannery Company, 10*s.*; 3d do do, do, 5*s.*

Best stirrup leather, R J Minnes, Kingston, 15*s.*

Best skin cordovan, J McDonald, Baltimore, Northumberland, 15*s.*; 2d do do, do, do, 10*s.*; 3d. do do, do, do, 5*s.*

Best specimen of belt leather, R J Minnes.

Best skirting leather, R J Minnes, Kingston, 15*s.*

Best side of harness leather, J McDonald, Baltimore Tp, 15*s.*; 2d do do, do, 10*s.*; 3d do do, do, 5*s.*

Best calf skin, dressed, J Miller, Picton Tannery Co, 15*s.*; 2d do do, do, 10*s.*; 3d do do, do, 5*s.*

Best skin of leather for carriage covers, R J Minnes, Kingston, 1*l.*

Best fur hat, Clark Wright, Kingston, 15*s.*; 2d do Domenico Chisachi, Kingston, 10*s.*; 3d do Clark Wright, Kingston, 5*s.*

Best fur cap, Clark Wright, Kingston, 15*s.*; 2d do Domenico Chisachi, Kingston, 10*s.*; 3d do do, do, 5*s.*

Best fur sleigh robe, Greene & Sons, Montreal, 15*s.*; 2d do Clark Wright, Kingston, 10*s.*

Best specimen of bootmaker's work, Thomas Thompson, Kingston, 15*s.*; 2d do do, do, 10*s.*; 3d do Samuel Chowne, Kingston, 5*s.*

Extra Prizes.—To R J Minnes, for leather for ornamental work, 10*s.*; to Domenico Chisachi, for silk hat, 5*s.*—Paris style, 10*s.*—do American style, 10*s.*—do London style, 10*s.*, and for lot of hats, diploma; Clark Wright, Kingston, for furs and hats, diploma; Greene & Sons, Montreal, for 2 sets of ladies' mink furs, 1 set gentlemen's do, and 1 hat, bought by Mr Perry for the Sydenham Palace Exhibition, diploma.

CLASS XXVII.—MANUFACTURES IN METALS, &C.

133 Entries.

Judges—E Birrell, Pickering; A Bertram, Montreal; John Scholfield, Welland; Morris C Lutz, Galt; William Rudston, Kingston.

Best model in metal of engine, general millwright's work or machinery, James Thompson, Toronto City, diploma and 2*l.*

Best specimen of silversmith's work, W C Morrison, Toronto City, diploma and 2*l.*

Best specimen of cast ornamental iron work, Wm Rodden, Montreal, diploma and 1*l.* 10*s.*

Best specimen of pumpmaker's work, F A Whitney & Co, Toronto City, (rotary pumps,) diploma and 1*l.*

Best lot of plumber's work, Neil McNeil, Kingston, 2*l.* 10*s.*

Best hall stove, W Rodden, Montreal, 1*l.*; 2d do Hamilton & Chown, Kingston, 10*s.*

Best parlor stove, Hamilton & Chown, Kingston, 1*l.*; 2d do W Rodden, Montreal, 10*s.*

Best cooking stove, with furniture, Hamilton & Chown, Kingston, 1*l.* 10*s.*; 2d do do, do, 1*l.*; 3d do W Rodden, Montreal, 10*s.*

Best specimen of iron casting for stoves or general machinery, John R Wood, Dickinson's Landing, (cast iron water wheel,) diploma.

Best balance scales, W Rodden, Montreal, 1*l.*; 2d do do, do, 15*s.*

Best set of cooper's tools, H H Date, Galt, 15*s.*

Best set of bench planes, J P Millener & Co, Kingston, 15*s.*

Best earth augur, Antoine St Jacques, Machiche, C E, 10*s.*

Best specimen 20 cut nails, Walker & Berry, Kingston, 10*s.*

Best rifle, James H Rowan, Kingston, diploma and 15*s.*

Best 6 narrow axes, H H Date, Galt, 15*s.*; 2d do J P Millener & Co, Kingston, 10*s.*

Best set of horse shoes, Francis Tracy, Kingston, 15*s.*; 2d do Jas Hobbs, Toronto City, 10*s.*; 3d do do, do, 5*s.*

Best assortment of edge tools, H H Date, Galt, diploma and 5*l.*

EXTRAS.—Daniel S Abbott, Kingston, carriage bolts, 1*l.*; J A Corbett, Kingston, Russian gun, 10*s.*; A C Chewitt & Co, iron axles for carriages, 10*s.*; do bar iron manufactured from scrap, diploma and 1*l.*; U Hawkins, Oshawa, self-acting wood-turning machine, 10*s.*; W Marks, Toronto, fire engine, diploma and 2*l.* 10*s.*; Mason, Cook, & Blakenay, Toronto, saw gummer, 10*s.*; do, lever jacks, 7*s.* 6*d.*; S S Blodgett, Brockville, improved baking oven, 15*s.*; R M Horsey, Kingston, stove trimmings, 5*s.*; John Condell, Kemptville, for artificial leg, diploma; Pierson & Benedict, Niagara, for 2 locomotive truck wheels, and 2 passenger car do, diploma; Walker & Berry, Kingston, manufactured iron articles and samples iron, 1*l.*; Francis Tracy, Kingston, buggy draught irons, diploma; H Ruttan, Cobourg, ventilating stove, diploma and 1*l.* 5*s.*; J H Headley, Walpole, marbleized granite, diploma; W Rodden, Montreal, garden cultivator, 5*s.*; John Dawson, Montreal, planes, bought by Mr Perry for Sydenham Exhibition, diploma; J J Higgins, Montreal, edge tools, bought by Mr Perry, &c, diploma; Wm Meikleham, Montreal, morticing machine, bought by Mr Perry, &c, diploma; Richard Tuck, Montreal, candle moulds and lettering plates for bags, 5*s.*; Wm Berry, Montreal, sewing machine, 10*s.*; Wm Evans, Kingston, Marmora pig iron and iron ore, diploma.

CLASS XXVIII.—CABINETWARE, CARRIAGES, &C.
133 Entries.

Judges—Isaac Modeland, Brampton; D Coleman, Port Robinson; Thomas McIlroy, Brampton; T D Hood, Montreal.

Best side board, James Morton, Kingston, diploma and 3*l.*; 2d do do, do, 2*l.*

Best piano, Canadian manufacture, T D Hood, Montreal, diploma and 5*l.*; 2d do Seebold, Manby & Co, Montreal, 3*l.*; 3d do T D Hood, Montreal, 2*l.*

Best veneers from Canadian Wood, Adam Main, Kingston, diploma and 1*l.*

EXTRAS.—Collection Canadian woods, Andrew Dickson, Kingston, diploma.

Best specimen of graining wood, Robert McLean, Perth, Lanark, diploma and 1*l.* 10*s.*; 2d do James White, Brockville, 1*l.*

Best centre table, William Bevis, Hamilton, diploma and 1*l.*; 2d do George Kemp, Kingston, 15*s.*

Second best easy arm chair, T Fuller & Co, 10*s.*; 3d do James Morton, Kingston, 5*s.*

Best sofa, T Fuller & Co, Oshawa, diploma and 3*l.*; 3d do James Morton, Kingston, 1*l.*

Best six dining room chairs, James Morton, Kingston, 2d prize, 1*l.*

Best Ottoman, Adam Main, Kingston, 1*l.*

Best writing desk, H Pellatt, Kingston, 10*s.*

Best 1 horse pleasure carriage, Joseph Tees, Montreal, diploma and 2*l.*; 2d do D Tice, Caistorville, 1*l.* 10*s.*; 3d do Linter and Linton, Kingston, 15*s.*

Best 2 horse pleasure carriage, Samuel Lake, Newburg, diploma and 2*l.*; 2d do George Mink, 1*l.* 10*s.*; 3d do M Hutchison, Yorkville, 1*l.*

Best 1 horse sleigh, John Webster & Co, Bath, Addington, 1*l.* 10*s.*; 2d do do, do, 1*l.*; 3d do Samuel Lake, Newburgh, 10*s.*

Best half-dozen corn brooms, R A Holmes, Kingston, 10*s.*; 2d do Charles Clarke, Kingston, 5*s.*

Best wooden pail, D B Booth, Odessa, Addington, 7*s.* 6*d.*; 2d do Aaron Dame, Belleville, 5*s.*

Best wash tub, Aaron Dame, Belleville, 7*s.* 6*d.*; 2d do do, do, 5*s.*

Best washing machine, Salem Eckhardt, Markham, 10*s.*; 2d do James and Dennis, Newmarket, 5*s.*

Best 4 or 6 panelled door, Robertson & Shaw, Whitby, 15*s.*; 2d do James Shearer, Montreal, 10*s.*; 3d do do, do, 5*s.*

Best window sash, 12 lights, hung in frame, Robertson & Shaw, Whitby, 15*s.*; 2d do James Shearer, Montreal, 10*s.*; 3d do John Ostell, do, 5*s.*

Best model beehive, W Phelps, Brighton, Northumberland, 10*s.*

Extra prizes in this department—to F M Andrews, Picton, for melodeon, 1*l.*; do do for melodeon, 15*s.*; to A B Kent, Newcastle, three melodeons, 10*s.* highly recommended; to McLeod & Co, Port Hope, blinds for windows, 5*s.*; do do, mouldings in wood, 5*s.*; Peter Lenea, Kingston, child's carriage, 5*s.*; G A Sargent, Bloomfield, P E, weaving loom, highly recommended, 1*l.* 10*s.*; Aaron Dame, Belleville, half-bushel measure, 5*s.*; do do, half-bushel measure, 5*s.*; Henry Pellatt, Kingston, gentleman's dressing case, 5*s.*; Oliver Mowatt, Kingston, 1 puncheon, 10*s.*; do do, 1 barrel, 7*s.* 6*d.*; do do, half-barrel, 5*s.*; Wm Cunningham, Jr, Kingston, parlour organ, 1*l.* 5*s.*; James Morton, Kingston, fire screens, 10*s.*; W Murdock, Kingston, imported melodeons and pianos, recommended; John Ostell, Montreal, window blinds, 5*s.*; do

do, mouldings, 5*s.*; Francis Tracy, Kingston, child's carriage, 5*s.*; S S Hickok, clothes horse, recommended; D O Gorman, Kinston, pleasure boat, 2*l.* 10*s.*; McKeand & Co, Toronto, for articles bought by M Perry, for Sydenham Exhibition, viz:—sideboard, sofa, centre-table, chairs, sewing chair, card tables, fire screens, prie dieu chair, diploma; James Shearer, Montreal, window blind, 10*s.*; do, do, samples mouldings, 5*s.*; T J Fuller & Co, Oshawa, lady's easy chair, 10*s.*; L J Gauthier, Montreal, 2 sleighs, 2 trotting sleighs, 1 sulky, bought by Mr Perry for Sydenham Palace, diploma.

CLASS XXIX.—POTTERY.

13 Entries.

Judges—Alexander Bertram, Montreal; Ebenezer Birrell, Pickering; John Schofield, Welland; Morris C Lutz, Galt; William Rudston, Kingston.

Best specimen of pottery, John Mooney, Prescott, 1*l.*

Best specimen of draining tiles and pipes of different sizes, W Lea, Toronto City, 2*l.* 10*s.*; 2d do Joshua Sisley, Scarboro, 1*l.* 5*s.*; 3d do W Lea, Toronto City, 10*s.*

Best 12 bricks, Daniel Gould, Napanee, 10*s.*; 2d do Joshua Sisley, Scarboro', 5*s.*

Best water filter, D Raymond, Galt, 15*s.*

Best assortment of pottery, John Mooney, Prescott, 1*l.* 10*s.*

Diplomas to Thomas Bramley, for Toronto Brick Company, for two cases pressed bricks, and prize of 1*l.*

CLASS XXX.—WOOLLEN AND FLAX GOODS.

122 Entries.

Judges—Wm Mann, Barrie; Robert Warren, Niagara; Thomas D Farley, Hastings.

Best piece of not less than 12 yards of woollen carpet, P R Palmer, Thurlow, Hastings, 2*l.*; 2d do Mrs Mark Burnham, Port Hope, 1*l.*; 3d do Coleman Bristol, Ernesttown, Addington, 10*s.*

Best pair woollen blankets, G M Barton, Dundas, Wentworth, 2*l.*; 2d do do, do, 1*l.*; 3d do do, do, 10*s.*

Best counterpane, Daniel Campbell, Charlottenburg, Glengarry, 1*l.*; 2d do do, do, Jas J Farley, Thurlow, Hastings, 15*s.*; 3d do Ebenezer Perry, Ernesttown, Addington, 10*s.*

Best piece 12 yards flannel, G M Barton, Dundas, Wentworth, 1*l.*; 2d do R Spooner, Kingston, 15*s.*; 3d do G M Barton, Dundas, Wentworth, 10*s.*

Best piece satinet, 12 yards, P R Palmer, Thurlow, 1*l.*; 2d do R Spooner, Kingston, 15*s.*; 3d do A McMillan, Kingston Tp, 10*s.*

Piece broad cloth, Canadian wool, G M Barton, Dundas, 2d prize, 1*l.*; 3d G C Hineman, Ancaster, 10*s.*

Best piece flannel, 10 yards, not factory made, R McD Huffman, Ernesttown, 15*s.*; 2d do do, do, 10*s.*; 3d do Daniel Campbell, Charlottenburg, Glengarry, 5*s.*

Best piece fulled cloth, 10 yards, not factory made, Nathan A Briscoe, Ernesttown, 1*l.* 10*s.*; 2d do John Asselstein, Ernesttown, 1*l.*; 3d do James J Farley, Thurlow, 10*s.*

Best shawls, not factory made, Joseph D Purdy, Ernesttown, 1*l.* 10*s.*; 2d do, do, do, 1*l.*; 3d do, do, do, 10*s.*

Best piece linen goods, Daniel Campbell, Glengarry, 15*s.*; 2d do do, do, 10*s.*; 3d do R Davison, Bastard Tp, 5*s.*

Best samples of flax, hemp, or cordage, not less than 28 lbs, James Cooper, Kingston, 15*s.*; do do do, do, 10*s.*; 3d do do, do, 5*s.*

Best 12 linen bags, manufactured from flax, growth of Canada, D Campbell, Charlottenburg, 1*l.*; 2d do Thomas Thompson, Williamsburg, Dundas, 15*s.*

Extra prizes in this department:—To Geo Barton, Dundas, for fine Canada greycloth, 1*l.* 10*s.*; to Miss Harriett Hinds, Bowmanville, for a Sofa Pillow, 5*s.*; and to Daniel Campbell, Glengarry, for linen sheets, linen table cloths, and pillow cases, 1*l.*; and to Mrs Charles Grass, Kingston Tp, for a wool and cotton carpet, 15*s.*

LADIES' DEPARTMENT.

CLASS XXXI.

375 Entries.

Judges—Mrs Geddes, Baroness de Longueuil, Mrs Bouchier, Mrs Flanigan, Mrs Briggs, Mrs Sadleir.

Best specimen of crochet work, Miss Harriet Bidwell, Northumberland, 1*l.*; 2d do Miss Douglass, Kingston, 15*s.*; 3d do Mrs Joseph Ferris, Kingston. 10*s.*

Best specimen of Guipure work, Mrs D Bentley, Kingston, 1*l.*; 2d do Miss M J Tisdale, St Catherines, 15*s.*; 3d do Miss H Bidwell, Northumberland, 10*s.*

Best specimen of lace work, Mrs John Cox, Toronto City, 1*l.*; 2d do do, do, 15*s.*; 3d do Mrs Wicksteed, Kingston, 10*s.*

Best specimen of fancy knitting, Miss Lighthouse, Trenton, 15*s.*; 2d do do, do, 10*s.*; 3d do Mrs Agar, Toronto: 7*s.* 6*d.*

Best specimen of fancy netting, Miss Dupuy, Kingston, 15*s.*; 2d do Miss Birrell, Pickering, 10*s.*; 3d do Miss Dupuy, Kingston, 7*s.* 6*d.*

Best embroidery, in muslin, Miss Stevenson, Kingston, 15*s.*; 2d do Miss M J Tisdale, St Catherines, 10*s.*; 3d do do, do, 7*s.* 6*d.*

Best embroidery, in silk, Mrs Pollard, Hamilton, 15*s.*; 2d do do, do, 10*s.*; 3d do do, do, 7*s.* 6*d.*

Best embroidery, in worsted, Mrs Joseph Ferris, Kingston, 15*s.*

Best specimen of worsted work, Mrs Unwin, Toronto, 15*s.*; 2d do Miss Jane Cumine, Wellington, 10*s.*; 3d do Miss J E Wilson, Kingston, 7*s.* 6*d.*

EXTRA PRIZES.—Mrs Matthew Rourke, Kingston, 5*s.*; Mrs Weller, Cobourg, 5*s.*; Miss Cosens, Toronto, 5*s.*; Mrs Finden, Belleville, 5*s.*

Best specimen raised worsted work, Miss M Rourke, Kingston, 15*s.*; 2d do Miss Ferguson, Pittsburg, 10*s.*; 3d do Miss E Jackson, Kingston, 7*s.* 6*d.*

Best specimen of ornamental needle work, Mrs Unwin, Toronto, 15*s.*; 2d do do, do, 10*s.*; 3d do do, do, 7*s.* 6*d.*

Extra Prizes.—Miss Tisdale, St Catherines, 7*s.* 6*d.*; Miss Dority, Niagara, 7*s.* 6*d,*

Best specimen of quilts, in crochet, Mrs Hodder, Toronto, 1*l.*

Best specimen of quilts in knitting, Margaret Rice, Kingston, 1*l.*; 2d do Elizabeth Makins, Kingston, 15*s.*; 3d do Miss M Patterson, Amherst Island, 10*s.*; 4th do Miss White, Kingston, 7*s.* 6*d.*; 5th do Mrs Orr, Kingston, 5*s.*

Best specimen of quilts, in silk, Mrs Joseph Ferris, Kingston, 1*l.*; 2d do Mrs Shaver, Fredericksburgh, 15*s.*; 3d do Mrs. Joseph Ferris, Kingston, 10*s.*

Best piece-work quilt, Mrs John Savage, Kingston, 1*l.*; 2d do Mrs John Chatterson, Richmond, 15*s.*; 3d do Maria Card, Wolfe Island, 10*s.*; 4th do Mrs. Shaver, Waterloo, 5*s.*; 5th do Mrs John Bush, Wolfe Island, 5*s.*; 6th do Mrs Fox, Waterloo, 5*s.*

Best specimen of tatting, Mrs W Boulton, Toronto City, 15*s.*; 2d do do, do, 10*s.*

Best specimen of braiding, Margaret Hacker, Niagara, 15*s.*; 2d do Mrs Thomas Briggs, Kingston, 10*s.*; 3d do Miss H Bidwell, Northumberland, 7*s.* 6*d.*; 4th do Miss L Barker, Kingston, 5*s.*

Best specimen of Wax fruit, Miss J A Todd, Oswego, N Y, 15*s.*; 2d do Mrs Bajus, Kingston, 10*s.*

Best specimen of wax flowers, Miss Annie Price, Belleville, 15*s.*; do discretionary prize, (equal,) Mrs Bajus, Kingston, 15*s.*; 2d do Miss Jenks, Rochester, 10*s.*; 3d do Miss Annie Price, Belleville, 5*s.*

Best pair woollen socks, Mrs E D Moore, York Tp, 10*s.*; 2d do Mrs Nelson Dollar, Fredericksburg, 7*s.* 6*d.*; 3d do Mrs Chas Dollar, do, 5*s.*

Best pair woollen stockings, Mrs E D Moore, York Tp, 10*s.*; 2d do Mrs Nelson Dollar, Fredericksburg, 7*s.* 6*d.*; 3d do Mrs Coleman Bristol, Newburg, 5*s.*

Best specimen of gentlemen's shirts, Mrs Mark Burnham, Port Hope, 15*s.*; 2d do do, do, 10*s.*; 3d do Mrs E Jackson, Kingston Tp, 5*s.*

Best pair of woollen mittens, Miss J Ferguson, Charlottenburg, 10*s.*. 2d do Mrs E J Jackson, Kingston Tp, 7*s.* 6*d.*; 3d do Mrs William Tubbs, Hallowell, Prince Edward, 5*s.*; 4th do Mrs Palmer, Thurlow, 5*s.*

Best pair of woollen gloves, Mrs Joseph D Purdy, Ernesttown, Addington, 10*s.*; 2d do Mrs E Jackson, Kingston, 7*s.* 6*d.*; 3d do do, do, 5*s.*

Best hat of Canadian straw, Mrs John Hopkins, Ernesttown, Addington, 10*s.*; 2d do do, 7*s.* 6*d.*; 3d do Mrs R E Grass, Sydney, Hastings, 5*s.*

The following were awarded extra prizes for ladies' work:—Mary P G Cole, Kingston, specimens hair braiding, 15*s.*; 2d Miss Tisdale, St Catherines, embroidery in cambric, 10*s.*; discretionary, Miss Tisdale, leather work frames, 10*s.*; do do, vase in potichomania, 10*s.*; do do, German bead mat, 5*s.*; do Mrs. Daniel Campbell, Charlottenburg, linen goods, 10*s.*; do Mrs Archibald McMillan, Kingston, China coverlet, 5*s.*; do Ann McLachlan, Kingston, fancy work, 15*s.*; do Mrs Joseph Ferris, do, window curtains, 5*s* ; do, do, tree of worsted flowers, 5*s.*; 1st, do piece velvet painting, 15*s.*; discretionary, Miss J Howard, Toronto, specimens hair braiding, 10*s.*; do Mrs Fox, Waterloo, fancy basket, 5*s.*; do Miss Barker, Kingston, leather picture frames, with Canadian mosses, &c, 1*l.* 5*s.*; do Miss Birrell, Pickering, down muff and boa, 10*s.*; N A Briscoe, linen stockings, 7*s.* 6*d.*; Miss Hawley, muslin work, 10*s.*

FINE ARTS, &c.

CLASS XXXII.—FINE ARTS, &C.

147 Entries.

Judges—J D Humphreys, Toronto; E J Baker, Kingston; C W Cooper, Kingston.

PROFESSIONAL LIST.

Oil.

Historical painting, Canadian subject, Paul Kane, Toronto, diploma and 3*l.*

Landscape, Canadian subject, Paul Kane Toronto, diploma and 3*l.*; 2d do do, do, 2*l.*

Animals, grouped or single, Paul Kane, Toronto, diploma and 3*l.*

Best portrait, Paul Kane, Toronto, 2*l.* 10*s.*

Pencil and Crayon.

Coloured crayon, Wm Armstrong, Toronto, diploma and 1*l.* 10*s.*

AMATEUR LIST.

Oil.

Landscape, Canadian subject, Miss Imogene Jones, Brockville, diploma and 2*l.* 10*s.*

Portrait, Miss Ida C Jones, Brockville, diploma and 2*l.*

Water Colours.

Flowers, Hon Mrs Rollo, Kingston, diploma and 1*l.*; 2d do Miss M Thompson, Toronto, 15*s.*; 3d do Miss Eccles, Toronto, 10*s.*

Pencil and Crayon.

Crayon Portrait, Miss Imogene Jones, Brockville, diploma and 1*l.*

Pencil drawing, Miss Tisdale, St Catherines, diploma and 1*l.*; 2d do Mrs Noel, Kingston, 15*s.*

Crayon drawing, Miss Imogene Jones, Brockville, diploma and 1*l.*; 2d do Miss Jane Benton, Kingston, 15*s.*

Coloured crayon, Miss Martha Thompson, Toronto, diploma and 1*l.*; 2d do Miss Ann Benson, Kingston, 15*s.*; 3d Miss Ida C Jones, Brockville, 10*s.*

MISCELLANEOUS.

Best specimen architectural drawing, Henry

Horsey, Kingston, 1*l.* 10*s.*

Daguerreotype, best collection, the exhibitor to have operated in Canada for the last twelve months, Hiram Lajier, Picton, Prince Edward, diploma and 1*l.* 10*s.*; 2d do do, do, do, 1l.

Wood Engraving, Thomas Wheeler, Toronto, diploma and 1l. 10*s.*

Engraving on Copper, Thomas Wheeler, Toronto, diploma and 1l. 10*s.*

Engraving on Steel, Thomas Wheeler, Toronto, diploma and 1l. 10*s.*

Best specimen of seal engraving, Thomas Wheeler, Toronto, diploma and 2l.

Best specimen carving in wood, David Fleming Toronto, diploma and 2l.

Best specimen carving in stone, Edwin R Welsh, Kingston, diploma and 2l.; 2d do Smith & Anderson, London, 1l.

Ornamental penmanship, H Gilbert, Belleville, diploma and 1l.; 2d do Miss Julia A Todd, Oswego, N Y, 10*s.*

Stuffed birds, Samuel W Passmore, Toronto, 1l.; 2d do, Edwin Abrahams, Kingston, 10*s.*

Picture frame, gilt, John Roberts, Hamilton, 1l.; 2d do do, do, 10*s.*

Picture frame, veneered, Alex Calder, Kingston, 1l.

Stained glass, J C Spence, Montreal, 1l.

Dentistry, Miles B Stennett, Hamilton, diploma and 1l.; 2d do B W Davy, Kingston, 10*s.*

Extra Prizes in this Class.—Miss Tisdale, St Catherines, landscape in water colours, 1l. 10*s.*; do do, do, 1l.; Stewart Westmacott, Toronto, oil painting, 1l. 5*s.*; do do, do, 1l. 15*s.*; Messrs. Pellatt, London, England, superior specimens of English ground and cut glass, diploma; Wm Armstrong, Toronto, colored and uncolored photographs, diploma and 2l.; Miss Anne Benson, Kingston, oil painting, 1l.; Alex Calder, Kingston, money box, 5*s.*; Miss Barker, Kingston, 3 leather work picture frames, 1l. 5*s.* Blodgett & Leggo, Brockville, dental instruments, 1l. 10*s.*; Mrs John Bush, Wolfe Island, leather picture frame, 5*s.*; Edwin Abrahams, Kingston, gun and fishing tackle, 10*s.*; Thos Robinson, Kingston, oil painting, banner, 1l. 10*s.*; Archibald M Barr, Toronto, lithography and engraving, 1l. 10*s.*; John Roberts, Hamilton, piece mirror frame, 1l. 5*s.*; George Arnheim, Kingston, rustic work, 10*s.*; William Simpson, Hamilton, pen and ink sketch, 1l.; Miss C Harper, Kingston, pen and ink etchings, 1l.; Mrs Smith, Kingston, for miniature steamboat, 10*s.*; Adam Main, Kingston, for leather work picture frame, 10*s.*; Wm Martin, Kingston, for model vessel, 10*s.*; Miss Julia Todd, Oswego, for painting on glass—vase of flowers, 15*s.*; Maclear & Co, Toronto, 5 prizes for five specimens of lithography, 2l. 10*s.*; S W Chubbuck, Utica, N Y, for telegraphic instruments, diploma and 1l.; E Birrell, Pickering, for 7 landscapes, Scottish scenery, 2l. 10*s.*; Miss Eccles, Toronto, for 2 water colour landscapes, 2 prizes, 2l. 10*s.*; W R Ellmore, Belleville, for lithograph map—County Hastings, 15*s.*; S P May, Toronto, for ornamental design—Arms: Education Department, discretionary, diploma and 2l.; for stuffed birds in case, discretionary, diploma and 1l.; Nathan Samuels, Paris, France, 3 boxes platina steel pens, diploma.

CLASS XXXIII.—INDIAN PRIZES.

17 Entries.

Judges—J D Humphreys, Toronto; E J Barker, Kingston; C W Cooper, Kingston.

Pair moccasins, worked with beads, Mary Ann Louis, St Regis, 5*s.*; do Mary Louis, do, 5*s.*; do Mary Dodds, do, 5*s.*

Extras.—Mary Ann Louis, various specimens Indian work, 15*s.*; Mary Louis, do 15*s.*; Mary Dodds, do, 10*s.*

XXXIV.—BOOKBINDING, PAPER, &c.

25 Entries.

Judges—J D Humphreys, E J Barker, C W Cooper.

Best specimen bookbinding, Gentry & Brown, Hamilton, 1l.; 2d do John Duff, Kingston, 15*s.*; 3d do Gentry & Brown, 10*s.*

Charles Hobrough, Kingston, extra prize, equal to 1st, 1l.

Best ream of writing paper, James Chalmers, Montreal, 1l.; 2d do do, do, 15*s.*; 3d do, do, do, 10*s.*

Best ream of printing paper, James Chalmers, Montreal, 1l.; 2d do do, do, 15*s.*

Best and cheapest ream wrapping paper, made from any material, James Chalmers, Montreal, 1l.; 2d do Geo Babcock, Brantford, 15*s.*; 3d do James Chalmers, Montreal, 10*s.*

Best specimen letter-press printing, executed since last exhibition, John Blackburn, Toronto, 2l. 10*s.*; 2d do do, do, 1l. 10*s.*; 3d do Thompson & Co, Toronto, 1l.

Extra Entries.—J Blackburn, Toronto, map printing in Typography, dis, 1l. 5*s.*: John H Stephens, Kingston, Illustrated Bible, (foreign publication,) commended.

FOREIGN STOCK AND IMPLEMENTS.

CLASS XXXV.—FOREIGN STOCK.

3 Entries.

Judges—Baron de Longueuil, Kingston; E W Thomson, Toronto; George Alexander, Woodstock.

Best stallion for agricultural purposes, R McNeill, Cayuga Co, New York State, diploma and 3l.; 2d do do, do, 3l.

Extra.—William Runyon, Watertown, New York, single carriage horse, 2l.

CLASS XXXVI.—FOREIGN AGRICULTURAL IMPLEMENTS.

41 Entries.

Best plough, Rapalje and Co, Rochester, New York, 1l.

Best subsoil plough, Rapalje & Co, Rochester, New York, diploma and 1l.

Best pair harrows, Rapalje & Co, Rochester, New York, diploma and 1l.

Best fanning mill, Rapalje & Co, Rochester, New York, diploma and 1l.

Best horse power thrasher and separator, Rapalje & Co, Rochester, N Y, diploma and 2l. 10s.

Best seed drill or barrow, Rapalje & Co, Rochester, N Y, diploma and 1l.

Best straw cutter, Rapalje & Co, Rochester, N Y, diploma and 1l.

Best smut machine, Rapalje & Co, Rochester, N Y, diploma and 1l.

Best portable grist mill, Rapalje & Co, Rochester, N Y, diploma and 2l. 10s.

Best grain cracker, Rapalje & Co, Rochester, N Y, diploma and 1l. 10s.

Best machine for cutting roots for stock, Rapalje & Co, Rochester, N Y, diploma and 1l.

Best corn and cob crusher, Rapalje & Co, Rochester, N Y, diploma and 1l.

Best clover machine, Rapalje & Co, Rochester, N Y, diploma and 2l.

Best reaping machine, Rapalje & Co, Rochester, N Y, diploma and 2l. 10s.

Best cultivator, Rapalje & Co, Rochester, N Y, diploma and 1l. 5s.

Best assortment of agricultural implements and edge tools, Rapalje & Co, Rochester, N Y, diploma and 5l.

EXTRA FOREIGN IMPLEMENTS.

Cowing & Co, Senecca Falls, N Y, fire engine, diploma and 2l.

Fairbanks, Vermont, No 7 scales, 1l. 5s.
do do No 11 scales, 1l.
do do Union scales, 15s.
do do counter scales, 10s.
do do 4 ton scales, 10s.

Cowing & Co, Senecca Falls, N Y, discharge pipe for engine, 10s.

Rapalje & Co, Rochester, horse hoes, 1st prize, 10s.
do do drill plough, do, 15s.
do do corn plough, do, 10s.
do do clod crusher, do, 1l.

John Bowly, Baldwinsville, N Y, grain cradle, 10s.

COUNTY AGRICULTURAL REPORTS.

Best Agricultural Report on the County of Addington, Dr E J Barker, Kingston, 15*l*.

Best Report on the County of Huron, Thomas McQueen, Esq, Goderich, 15*l*.

CUTTING DOWN TREES BY STEAM.

The *Country Gentleman* in noticing the machinery exhibited at the New York State Fair, gives the following account of a new machine which may prove of great utility in clearing away the forest. It is to be regretted that a machine of this description had not been invented half a century ago. It would have saved an immense expenditure of muscle:

"The show of machinery in motion, we think, was never greater. Much of it was owing to the enterprise of Hoard & Sons, manufacturers of Engines at Watertown, who had a large number constantly at work. We were pleased to see the portable Engine of A. N. Wood & Co., of Madison county on hand, and busily engaged. We did not discover anything particularly new—with two quite important exceptions, viz: a Reversible plow, patented by A. Barton of Syracuse, in which, by a simple movement of the beam, the point is carried round so as to form a perfect plow to turn the furrow either way as desired, or by setting it in the middle straightforward, as good a double mould board as one could wish. Its simplicity and facility of change are worthy of the highest commendation, and should at once attract the attention of manufacturers and users of this important implement.

The other machine referred to, was no other than a steam tree-chopper! We have been in the habit of thinking a portable engine quite an improvement; what will our readers think of one which two men can carry about with them, and which by attaching it, by means of a flexible tube or hose, to a boiler on an ox-cart, can work in a circle of 200 feet, without moving the boiler, cutting or rather *sawing* down trees of 15 inches diameter in *one minute's* time, as we actually saw it do on the fair ground. The saw is attached immediately to the piston-rod of the cylinder, the valves of which are worked by the most simple possible of all contrivances, but one so far as we know entirely new,—and cylinder and all is carried from tree to tree, first sawing it down, then divesting it of branches and dividing the trunk and branches into any desired lengths. It attracted perhaps more attention than any other one thing shown, and deservedly received the highest award the committee could give. It can not but prove itself of great value especially to lumbermen. It is the invention of Mr. Fairbanks, of the firm of Fairbanks, Wilmot & Co., No. 343 Broadway, New-York, who are not yet prepared, as we understand, to offer them for sale—this being merely an experimental effort which has been at work among the woods for a few months on trial. They may anticipate a demand which will keep them busy as soon and as fast as they can supply it.

HESSIAN FLY,—WHEAT CULTURE,—PEA-WEEVIL, &c.

Saltfleet, C. W. October 10, 1856.

Sir,—I am advised by a friend, to send a few propositions regarding the so-called "Hessian Fly,"—and the insect commonly termed "Pea-bug,"—also with respect to the "Weevil," known to devastate the *wheat* crops, as well as the "Hessian Fly." I hope you will be able to answer my queries: as your position as Editor of the *Agriculturalist* must bring you into frequent intercourse with *intelligent practical* men, from whose communications you will most likely, be able to draw the necessary inference on these important points.

An answer as early as convenient will oblige,

Yours truly,

T. Jessop.

"HESSIAN FLY."

1stly.—Upon what soil does this "Fly" commit the greatest ravages on the wheat? Or can you sow upon all kinds of land with equal impunity?

2dly.—Is it not an established fact, that the better and richer, and more cultivated the ground is—the less frequent, and likewise the less virulent, are the attacks of this "Fly?"

3dly.—What effect has drains, and does not the superabundant quantity of moisture that rests on the ground during Spring and Fall, for want of "under drains," tend to harbour and nourish this insect?

4thly.—About what date is it best to sow the wheat grain to avoid the fly? Or, is it not best to *sow late*: say about the first October?

5thly,—What description of *manure* is best suited (on ordinary soil) to ameliorate this evil?

6thly.—Can any chemical preparation be used, and has any been used, either as "top dressing," or to steep the seed in before sowing, that will be beneficial without injury to the grain?

7thly.—What remedies of *any* description have been used?

8thly.—What in your opinion will have most effect beneficially?

9thly.—What has been noticed relative to the seasons; whether dry, wet, or otherwise; and the *prevailing winds* during the latter part of the year, about the time the seed is put in, when the "Fly" has been most virulent in its attacks the succeeding Spring?

The Weevil is known to attack the head of the grain about the time of flowering, or as the farmers about here say, it is "Stung" about that time; or, as I presume, some animalcule deposits an egg, which in the process of time, turns to the weevil.

Now, what is the best mode of treatment in this case? I wish to be enlightened respecting *top dressing, draining soil,* and the VICINITY of PRIMÆVAL TIMBERED LANDS. I think the last idea may bear investigation amongst the rest.

Also any information with regard to the "Pea bug." The only method I know of ameliorating or avoiding in some degree the ravages of this insect, is to cut the Peas before they are perfectly ripe. Also you can by sowing very late, about the

first of June, obviate in a great measure this evil, as the fly that stings the pod by that time has gone, or ceased to deposit its eggs.

I hope these numerous queries will not interfere with more important business. I should also be glad if you could recommend any book or phamphlet that may have been published either here or in the United States, on wheat, its growth and culture.

T. Jessop.

Remarks.—We publish the above more for the purpose of eliciting the views of some of our readers, than of attempting a full reply ourselves. Our space is too limited in the present issue for a thorough examination of the subject, and as the essays called for by the Minister of Agriculture will probably be published before another wheat harvest, we may find it necessary to devote considerable space to the matter in future numbers. If our correspondent will refer to the *Agriculturist* of last year, page 196, he will find an account of the Hessian Fly from the best American authorities. We shall briefly answer the queries of Mr. Jessop from our own observation, leaving it to any correspondent who may be able to do so, to add further information, or correct our statement.

1st. We are not aware that the Hessian Fly shows a preference for any particular soil. We have found it in about equal numbers upon clay-loam, and sandy-loam, where the soil was of about equal fertility.

2nd. Yes. Our own observation, as well as the testimony of intelligent farmers in this country and in the United States, proves that on good soil, and well cultivated, the wheat crop is able to resist the attacks of the Hessian Fly much better than on poor soil &c.

3rd. We doubt whether "superabundant moisture" is directly favorable to the larvæ of the Hessian Fly; but by injuring the wheat plant, and rendering it less able to resist the fly, too much water is no doubt an evil. Under draining, by improving all the conditions of growth, &c., must help the wheat plant to resist the attacks of insects.

4th. Late sowing is recommended to avoid the Hessian Fly, but as late sowing exposes you to the ravages of a much greater enemy, the wheat-fly, or wheat-caterpillar, we prefer early sowing.

5th. We are not aware that the *kind* of manure has any influence. The *quality* should be good, and the *quantity* plentiful, and the Hessian Fly will not give much trouble in this country, judging from past experience.

6th. We have no knowledge on the point—should think it unlikely. Experiments should be made.

7th. Burning stubble, fall-ploughing stubble, late sowing, abandoning fall wheat, selecting varieties with strong stems, such as white flint, &c., and probaby other expedients, but upon the whole, with indifferent success. High cultivation and thick sowing is the best remedy in our opinion.

8th. Answered above.

9th. We do not think any reliable observations have yet been made on this subject. We have not met with them at all events. The fly is much worse some years than others in the same locality, no cause being apparent but that of climatic influence. We require a series of accurate observations at different points, for a number of years, to furnish reliable data. But as the seasons are beyond our control, we do not readily perceive what great benefit we can derive from these data when obtained.

The true "Weevil" is but seldom seen in this country. The insect that has lately done so much mischief in Canada, so far as we can judge from specimens sent us, and our own examination, is a species of caterpillar. It is called Gaylord's Wheat Caterpillar in the State of New York. The "Midge," a smaller insect, has committed some ravages

South and West of this, if we can depend on the loose descriptions we have seen. The egg is deposited by the fly, and its larva attacks the grain in the ear. Draining, top-dressing, &c., will not, probably, produce any direct influence on those insects which prey on the grain itself. By ensuring a larger yield, they render the attacks of insects less disastrous—there is more left after they have taken their toll.

The Pea-bug, or Pea-weevil, is also apparently affected by the weather. Last year it was very prevalent in the neighborhood of Toronto. This year it is hardly seen. We tried late sowing last year—say last week in May—and escaped the fly, while an adjoining field, sown early, was badly affected. We cannot understand how the evil could be remedied by cutting green. The larva is in the pea, and will continue to feed upon its substance, till ready to undergo its transformation.

A work has recently been published in New York, by F. P. Lowe, on Wheat and its Culture, but we have not seen it, and can only speak of it from report. If our correspondent will send to Mr. Saxton, Agricultural Publisher, New York, that gentleman will, no doubt, be glad to forward him all the publications on the subject which have appeared in the United States. All the standard works, such as—Stephens' Farmers Guide, Morton's Encyclopedia, Johnston's Lectures, &c., contain more or less information on the subject. In this country, and the United States, you must consult the periodical publications, transactions of Societies, Boards, &c., for information of a practical kind.

We trust the above hastily written remarks will not prevent some of our correspondents from answering more fully the queries of Mr. Jessop. Among our readers there are many who can throw more light upon such a subject than we can.

The New Steam Farmer.—I devoted two days to the examination of the operation of Boydell's Traction Steam-engine as a locomotive and tractive power, and have come to the conclusion that it is a "great success." This success is owing to the endless and wide railway attatched to the circumference of the wheels, which gives a fulcrum for the lever, and a bearing sufficiently wide to carry a great weight on soft ground, without embedding in the soil. Hence the avoidance of friction and clogging. We might illustrate this by a sportsman on the mud oozes, whose feet sink in, and thus render his power unavailable; but by attaching to his feet wide pieces of board, the pressure is diminished to a bearing condition. Thus in the case of Mr. Boydell's machine, although it weighed nine tons, its impress was scarcely perceptible, where a horses' foot left a deep indentation. The engine walked from Camden-town to Acton, taking in tow its four-wheeled waggon, with coals, and four heavy iron ploughs, and water enough for four hours work. When on the soft turnip-field—after a night's rain—it drew after it ploughs, scarifier, &c., with perfect ease, and then walked home again to Camden-town. It can ascend an acclivity of one in three, which is nearly walking up stairs, our stairs being one in two. It can back, advance, or stop instantaneously, the pinion being shifted from the cogs to the driving-wheel: and the power thus suddenly released is carried off by a separate fly-wheel, which may be used for driving thrashing machines, mill-stone, or other purposes. In fact, instead of a farmer sending for and sending back a six horse-power engine and thrashing machine, requiring in each trip our horses, this machine will move itself anywhere—draw the corn to market, bring home manure, and do the cultivation and work of the farm. The machine can turn as easily as a common waggon, and does not mind a deep furrow or a side-hill.—*Abridged from a letter from Mr. Mechi, of Tiptree Hall, in the Journal of the Society of Arts.*

Fall Plowing.—When the object aimed at in autumn plowing, is to render a clay soil more friable, and when there is no sod or sward to be rotted, it may be carried on as long as the ground is free from frost. The less the land is exposed to drying winds, rains, &c., after plowing, the greater will be the effect of the winter's frosts in making it mellow. To obtain the utmost benefit the land should be thrown up in narrow ridges, or in such a way as to allow of its greatest exposure to the air, and its ready crumbling.

REMARKS ON SHOEING.

From the American Veterinary Journal.

Dr. Dadd,—Dear Sir: I cannot coincide to the full extent in your strictures on the usual method of applying the shoe hot, to the foot, in fitting for shoeing. At present I have not time to go into the whole subject, or to deal with the merits of the arguments you advance, but will only state my own experience in regard to it.

In the forge connected with my own practice here, the shoe is always applied hot in fitting—we meet with many cases where a good fit cannot be made otherwise—and I have never known the slightest harm to result from the practice. In the forge of Professor Dick, of the Veterinary College, Edinburgh, where shoeing is allowed to be practiced on as sound principles as anywhere else in Europe, and in all the other forges in Scotland or England I ever had a chance of seeing, and the number is pretty large, the same method was practiced, and with the same freedom from any bad consequences. And with the French system of shoeing it is hardly possible to make a good fit by any other means.

In thus defending the use of the shoe, red-hot, in fitting, from my own experience, and not from any "book knowledge concocted by a compiler," it must be borne in mind that those who thus practice it with impunity do not do so in the belief that a horse's hoof cannot be injuriously burned with a hot shoe. The reverse of this is the case. They know the evil, and by knowing avoid it. No rational blacksmith in any civilized community, now-a-days, would ever apply a hot shoe for "*a minute*," or even "*half a minute*," to a living foot, as the French experimenter did to the dead one. From three to five seconds is the usual duration of the contact, and from the slowly conducting quality of hoof, the heat of the shoe cannot penetrate more than a sixteenth to a twentieth part of an inch in this time. Then again, in practice, the portion of crust so charred and heated is not allowed to remain in *situ* to communicate its caloric to the subjacent parts, but is immediately on the withdrawal of the shoe, removed. In fact the chief benefit, as you justly say, of applying the shoe hot being to mark unmistakeably those points where the bearing is too hard; the cutting away of whatever the shoe has browned is a necessary and immediate consequence of the previous part of the operation. The sole, which your French authority says is a greater conductor of heat than the crust, should never be touched by the shoe, either hot or cold. Lastly, those who practice their craft knowingly never apply the shoe in fitting, as your experimentalist did, either at a "black" or "cherry heat." To do so would necessitate a far too protracted application before the desired degree of singeing was produced. The shoe should be fitted red-hot, adapted lightly to the foot for a second or two, just to brown the points of contact between the two, and then withdraw to allow of their speedy removal. By attending to this, which every good blacksmith does, no harm will occur from the use of the hot shoe in fitting.

I grant what you say about the possibility of making the ground surface of the foot even with the knife and rasp, but in practice thereare many feet which it is not advisable to make even, and where the shoe must be adapted to the irregularities of the foot. And, as I said before, in the French system of shoeing, where the toe is turned up in imitation of the natural tread and wear of the foot, the ground surface before the shoe is applied, is never even. All which, shows, that the use of the hot shoe in fitting, if it can be practised harmlessly, as I think it can, is not to be proscribed without due and weighty reasons.

Of course in making these remarks, at the result of my own observation, I am not by any means dissauding those who think they can do better by fitting cold than hot, from adopting the plan. There can at least be nothing said against its safety, and no harm can come from it in the way of "contracting the calibre of the porosities," as you say. But at the same time I think those who adopt it should not be encouraged to rail too harshly against those who do the other way, unless they can show that the practice is hurtful essentially as well as accidentally.

Yours, &c.,

M. Cumming, V. S.

St. John, N. B., Aug. 20th, 1856.

Washing Day.—The time when a woman can throw a broom at a thievish dog, or say, "I won't," without being thought cross.

FILTERING CISTERNS AND CISTERN BUILDING.

In a previous number we have spoken of pure water as essential to health. We regard rain water as pure, fit for use. How to get it and keep it is the question now before us. To do this, cisterns must be made in the ground. The size of cisterns may depend upon the quantity of water wanted. They may vary from five to twenty feet in diameter, and from ten to twenty-five feet in depth. A deep cistern will keep the water cooler and probably better. From sixteen to twenty feet is a good depth. We are of the opinion that excellent water can always be kept in cisterns of that depth. From six to nine feet is a good width for ordinary family purposes. They should be dug round, and with the utmost regularity, be perpendicular, the bottom smooth, and a little hollowed in the middle, to facilitate the process of cleaning and give greater permanency to the coat of cement. A permanent clay soil is generally solid enough when well dug, and the sides well smoothed and cemented, to make a lasting cistern; but it is always best to brick over the bottom and sides. This gives the most reliable permanency if the bricks are properly laid. It prevents any water pressure from bursting in, and makes a solid basis for the cement. The top should be arched over with brick, leaving a hole in the middle about two and a half feet in width, and arched sufficiently to sustain any pressure that may ever be expected to be put upon it. When it is thus dug and arched, or bricked, it is ready for the cement, which should be carefully put on at three coatings. Good hydraulic cement, well put on, will make a permanent water-tight lining for the cistern, which is cheap and not easily displaced.

The next important matter is a filter. Pure water cannot well be obtained in all seasons of the year without a filter. There are many modes of filtering cistern water. One is to dig a small cistern six or eight feet deep, near the main one, and fit a filter in the bottom of this, having first connected it with the main cistern by a lead pipe. The orifice of the passage to the main cistern is first protected by bricks or stones. These are covered with a strong coarse woolen cloth. Upon this is placed a layer of powdered charcoal: on this a layer of gravel; another cloth similar to the first: and then charcoal and gravel again. The more of these layers the more perfect the filter. They must be so placed that all the water shall pass through them. The filter in all cisterns is made in the same way.

Another arrangement is to make two cisterns of equal depth, one much larger than the other, and connect them at the bottom with a lead pipe. Lay up a brick arch around the orifice of the passage in the large cistern, about two feet high and make the filter in this. Let the water from the roof into this cistern. The main body of the water being in the large cistern, it will fill slowly, and the water will have time to settle all it will, before going through the filter. There is probably no better plan for good water than this. The only objection to this plan is, that if the filter needs repairing or replenishing, the water must all, be taken out to do it.

Still another plan, is to make a large and small cistern, the large one half the depth of the small one. Make the filter in the large one as in the last named plan. In this the water filters quicker without time to settle, but the filter can be repaired without the loss of the water in the small one.

Some divide the filtering cistern with a brick wall, and place a filter in this and another at the aperture as above, making two filters. This doubtless will give excellent water. Whatever plan is adopted, care should be taken to do it well. Let all the work be done well, and of good material, and there can be no doubt of receiving good water.—*Goward's Real Estate Reg.*

Reaping Machines *vs.* Hand Labor.—The English *Agricultural Gazette* calculates that if manufacturers could only distribute 10,000 reapers before another harvest, it would be equivalent to more than letting loose all England's standing army on the grain fields of Great Britain. And it further remarks—"Had we had such means at our command this year we should not now have had to complain of one-half our crop being five days in the rain. Supposing these machines to have been a week at work, 500,000 acres would have yielded 2,000,000 quarters of Grain, worth more both in money and as food, by much more than the value of the machine, than it now will prove to be. And the ground would have been cleared a fortnight earlier than it will for autumn cultivation and the other sources of employment which energetic agriculture furnishes."

AGRICULTURAL EDUCATION.

The following remarks on the means of practical instruction in agricultural science are from the pen of Mr. S. W Johnson, an able correspondent of the *Country Gentleman*. As we are making some feeble attempts in that direction in Canada, his observations may be read with advantage:—

"In my last it was attempted to illustrate and define more fully the ground covered by scientific agriculture; we have now to consider the methods of teaching it, or rather the helps towards the elucidation and enforcement of its doctrines.

As the laboratory is needful to illustrate the facts of Science, so the farm is necessary to illustrate Practice. But whether it is best directly to connect a school with the farm, is a question which admits of either an affirmative or negative answer according to circumstances.

It must be remembered that an agricultural school is a place to learn what cannot be learned elsewhere. What is taught on the farm may be neglected in the school.

In no country flourishes a more extended or better periodical agricultural literature than we possess; and nowhere are agricultural exhibitions so often and so intelligently attended as here. As a consequence the majority of those who would become pupils in an agricultural school are so far familiar with every detail of practical agriculture that they could put into practice almost any farming operation or plan, had they the means and the incentives. The class of young farmers who would patronize an agricultural school are uniformly familiar with every improved, if not in all cases with the most improved implements. They all know something of the peculiarities of the best breeds of cattle, sheep and swine. They certainly would never need to be taken into the field to see the usual and best methods of plowing, of making hay, or of carrying on the majority of farm operations, and were they put in possession of the true theory, and the best routine of husbandry, would be abundantly able to work out the highest results.

Those who have not been brought up on the farm, had better arrange with some good farmer to live and work with him a year or two, rather than attempt to seek a knowledge of practical agriculture in any school; unless, indeed, it be a school organized especially for supplying their wants.

A knowledge of oridinary farm practice being possessed by the the student, we have to enquire what practical illustrations he still needs, and how they may best be provided. This subject is too extensive to be adequately treated of in a short article. We must, therefore, be content to discuss briefly some of the more important plans for furnishing the kind of instruction under notice.

Agriculture may be efficiently taught without great expenditure for means of practical illustration. However, an almost indispensable part of any school that professes to supply anything like a complete course of agricultural instruction, is an experimental and illustrative garden. Many of the less pretentious, yet most efficient agricultural schools of Europe, have no land of their own beyond a few acres of garden. Such is the Royal Saxon Agricultural School at Tharand, near Dresden. Its distinguished teachers, Schober and Stoeckhardt, know how, with apparently little means, to attract pupils from every country in Europe.

The illustrative and experimental garden is a cheap means of a great amount of valuable instruction. By its help it only costs a few dollars annually, to bring before the student every plant that has any agricultural importance, and illustrate the chief points to be attended to in its cultivation. Fruit culture, particularly, may be thus easily taught, and the various modes of propagation, pruning, dwarfing, procuring new varieties, &c., thoroughly inculcated in a practical manner. There are numerous species of grasses and other plants which are cultivated and prized in other countries, but are as yet almost unknown here, that might be made familiar to the learner. The agricultural value of Italian rye-grass, of rape, lucerne, lupines, &c., &c., might thus be practically made evident. The plot of sand might be used to show the wonderful fertilizing effects of guano, and it would be easy to make little beds of different soils, to illustrate how a given special manure would show good results on one and fail on another. The relative merits of deep and shallow tillage, of drill culture and broadcast sowing, &c., &c., might be easily demonstrated.

There remain a great variety of matters in which the student should have the advantages of illustration, for which the garden can furnish no facilities. Such are thorough-draining, subsoil ploughing, irrigation, and similar operations where benefit can only be-

come manifest when they are conducted on the large scale. Again, specimens of the different races of cattle, sheep and swine, need to be accessible to the learner, that he may have an opportunity to familiarize himself with their relative merits, or peculiar adaptations. Further the different branches of farming, as dairying, raising fat cattle, grain production, the nursery business, &c., have each characteristics to which the attention of the student should be directed by example as well as precept. Finally, the agricultural school ought not only teach the items or elements of farming, but ought to instruct in the highest and most advantageous combinations of these elements, in the best *systems of farming*, and the general management most appropriate to various economical and climatic conditions.

These ends it is customary to seek to accomplish in two ways. Either as at Tharand, the farms in the vicinity are visited by the students in company with their teachers, or as at Hohenheim, Grignon and Cirencester, the institution itself is connected with an extensive estate, where, as far as practicable, every branch and subject of agriculture is practically illustrated on a business scale.

In attempting to decide which of these plans is the best, a great variety of considerations must be weighed. We must not for a moment allow authority or precedent to influence our opinions. Neither is it safe to rely in an indefinite manner on the experience of the old world. Doubtless for the peculiarities of each school that has been established in Europe, some local causes may be traced. Their peculiarities are not the result of whim. Let us consider some of the circumstances that attended the foundation of the Hohenheim Academy. The kindom of Wurtemberg at that time, was a country not remarkable, I believe, for the fertility of its soil, and inhabited by a poor, though industrious people. The system of farming was hardly improved over the three-course rotation that dates back to the time of Charlemagne. The same wretched old implements were in use, and the soil could not be made to support its dense population with anything like the comfort, now-a-days deemed indispensable. An agricultural revolution was wanted. The student in the newly-established academy had to unlearn much of the knowledge he might have gained at home. The farms of the country could not supply him with illustrations of good rotations, of convenient implements; of thorough tillage, of improved stock, and it was absolutely necessary that the school should provide itself with these things as parts of its apparatus. Furthermore, the old habits of husbandry that had been rooted in the people for centuries, were not to be extirpated by mere talk. That something better could be done, must be proved by arguments admitting of no fallacy—by demonstration; and so a farm was made the basis of the school, and on it the doctrines taught in the lecture-room were carried into remunerative practice.

In Saxony, on the other hand, at the much later period when the Tharand school was established, circumstances were different. The Saxon people were in possession of a much more perfect agriculture. Many pupils of the Hohenheim school had put into practice its doctrines. Well-conducted farms were not rare, and the land owners were largely imbued with the spirit of innovation, for flourishing manufactures and commerce had put them on a level with the times. There was not so imperatively needed a farm to illustrate and enforce new doctrines. The country abounded in illustrations. Let me not be understood as assuming that the circumstances mentioned have alone originated this difference between the two institutions; but no one can fail seeing that their influence has been very great. Doubtless the question of expense has had no little share in deciding upon the appointments of many of the newer schools.

In our older States there are abundant localities where an agricultural school might safely rely upon finding within reasonable limits, almost every desirable illustration of improved agricultural practice, and examples of the best implements and stock—localities where nearly every advantage that could be expected from an extensive farm connected with a school, might be derived from excursions to the farms of neighbours. On one farm would be found a dairy, on another specimens of superior breeding cattle, on another fine sheep; here the benefit of thorough draining, there of irrigation could be witnessed, and, although some desirable improvements were at first wanting, they might doubtless be supplied in a few years, through the influence of the school itself. *It thus appears entirely reasonable, and has been abundantly proved in Europe, that with a building and a corps of instructors not more extensive than many of our country academies possess, it is possible, with the help of a few acres of garden, and excursions to the surrounding farms, to accomplish nearly everything desirable by way of Agricultural Education.*

What then are the advantages of an extensive farm connected with a school for American farmers? This question will be discussed in a future article.

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END OF VOLUME—NOTICE TO SUBSCRIBERS.

The present number completes the *Eighth* Volume of the *Agriculturist.* Although we confess to some shortcomings during the year, we think our subscribers will generally admit, that they have received value for their money. The Publishers promised some things at the beginning of the volume, which it was not found practicable to carry out in a desirable manner, and therefore they were not attempted. Among these was the promise to give wood-cut portraits of our most distinguished Agriculturists. It was soon found that, besides the difficulty of obtaining likenesses from which to copy, the selection would involve invidious distinctions, and probably provoke disagreeable comments. It was therefore determined not to make the attempt. It was also intended to illustrate other subjects more fully; but though Toronto is a large and enterprising city, it does not yet support a first-class wood-engraver. We were thus compelled to limit our illustrations to fewer subjects, which may have disappointed a certain class of readers. But, on looking over the volume, we notice upwards of twenty-five engravings, chiefly of new, or improved implements and machines.

As to the reading matter, letter-press, paper, &c., we believe we can safely aver, that the present volume is an improvement upon its predecessors. The last (11th) number was unfortunately sent to an office to be printed where they either do not know how, or do not care to execute their work properly, and a large part of the edition was very indistinct. The defect was not discovered in time to remedy it. Another evil, which we have found it impossible wholly to overcome, is the issue of the *Agriculturist* at irregular periods. We shall endeavour, next year, to put it to press early enough to secure its being mailed by the 1st of each month, even should it sometimes be a few days in advance.

We hope also that we shall be able to make an arrangement with the Board of Agriculture, by which their entire *Transactions* will appear in the *Agriculturist*, without unduly occupying the space now devoted to editorial remarks, correspondence, miscellaneous matter, &c. If the object of the Board be, to disseminate useful information among the *farmers* of the country, we are ready to aid them; but if it be only to make a costly book, with which to lumber up newspaper offices, the libraries of members of Parliament, and the dusty shelves of County officials, we must be content to pursue our own plans. The advantage *we* seek by the arrangement, is simply to be able to present our readers with the proceedings of the Board as so much *additional matter*, without enhancing the price of the *Agriculturist*, or lessening its usefulness and interest to the general reader. The advantage to the Board will be, that their matter will go into the hands of the agricultural public, and at a much less cost than by any other plan.

The next number (being the first of the Ninth Volume) will be issued on the first of January, 1857. A few copies will be sent, as usual, to the Secretaries of Agricultural Societies, merely as a specimen. Orders must be sent *expressly*, if the work is to be continued. The price will remain as at present, viz.—*Two* copies to one address for *One Dollar*. To Societies, Clubs, &c., 2s. 6d. each, *for any number*. Payment *always in advance*, except in the case of Societies, to whom short credit will be given, if required.

COLIC AND BOTS.

(*Lecture Delivered before the Legislators of the State of Maine, by the Editor of the American Veterinary Journal.*)

Gentlemen,—Those of you who honored me with your presence last evening, will remember I contended that veterinary science was to "brutes" just what human surgery is to our race, and that when practised with the same amount of skill and intelligence, as in the latter case, tended alike to the same desirable results; and, therefore, was worthy the consideration and support of a Great Nation of husbandmen.

I proved, I believe, beyond a reasonable doubt, that at the present time there exists a lack of informations regarding the fundamental principles of our science: its objects and tendencies; and I introduced evidence demonstrative of the barbarous follies that are continually practised under the guise of "Horse Doctoring," to the great injury of some of the noblest specimens of creative power, that man has ever been permitted to hold in subjection, and to the disgrace of men, whom, in these enlightened times, are guilty of such glaring absurdities.

I advocated the cause of those whom, "bereft of speech," are incapable of pleading for themselves, and in view of ameliorating their condition, and thus rescuing them from the curse of irrational medication, I recommended the endowment of veterinary schools, similar to those now in operation in Europe.

The subjects which I propose, this evening, to call your attention to, are:—

COLIC AND BOTS.

The term *colic* is used to designate a disease of very frequent occurrence, both among horses and their masters; those of my audience who have ever been the subjects of an attack of this character, and have experienced the excruciating torment attending it, can readily sympathise with a poor horse when in a similar condition. There is no disease with which I am acquainted that is so sudden in its attack, nor for the time being so distressingly painful, as colic. It is sometimes accompanied with delirium, so that the unfortunate creature will, in falling, or while on the floor, mutilate his body with reckless ferocity as if striving to find relief in his own destruction; and occasionally he does succeed in hastening death, either by rupture of the diaphragm or intestines, or inflammation of the latter.

Nature of the Disease.—There are two forms of colic to which horses are subject, one is termed *spasmodic*, and the other *flatulent*. The first form is recognized by horsemen as *spasms*, *gripes*, *cramp*, and *stoppage*. The term stoppage has been applied, from the fact, that in some cases the patient passes neither fæces, flatus, nor urine, and thus the stablemen infer, and the inference in some cases is probably correct; that the bowels, as well as other parts, are spasmodically contracted, or else *intussusception* (a folding of one part of the bowel into another,) has taken place; although the latter feature is often associated with flatulency.

It is only necessary to know something of the anatomical structure of the intestines, to perceive how and by what means the spasmodic action takes place. The intestinal tube of the horse, which is about ninety feet in length, is composed of external, internal, and central coats. The central coat, or rather, layer, is composed of muscular fibres of two orders: one set are circular, the other longitudinal; should contraction occur in the longitudinal fibres, the bowel is proportionately shortened; when it occurs in the circular fibres, the calibre of the intestine is decreased, and sometimes in tonic spasm, complete stricture of the part takes place, so that it is almost impossible to pass even a small probe through the intestinal stricture. On examining horses that die in this state, the small intestines have a knotted appearance, from which feature some persons have compounded the term "gut-tie."

Flatulent Colic, which is by far the most common affection, differs so essentially from the preceding that the one can easily be distinguished from the other; in the latter affection flatus, or "*wind*," is always present, and if at the early stage, no perceptible abdominal distension occurs, it very soon shows itself. One way of satisfying ourselves of the presence of flatus is, to apply the ear to the abdominal region; within, a sort of active rumbling is heard often, accompanied by a tinkling or metallic sound. But while examining the case, we may, perhaps, perceive that the horse passes flatus by the anus, or eructates it from the mouth; in either case our doubts, if we have any, are immediately

set at rest; this feature, accompanied by others, which I shall allude to, complete the chain of evidence.

In some cases the gas goes on accumulating in the large intestines until the abdomen resembles that of an ox, said to be "*hoven,*" or "*blasted;*" this is a state called *tympanites,* (windy distension.) When the gas generates very suddenly, and the abdomen immediately acquires immense volume, the case is termed *meteorization.**

It is very distressing to witness the sufferings of an animal in this condition; and the only chance of relieving him is by puncturing the colon, and unless this operation be performed early, it will prove fruitless.

Symptoms of Colic.—It may be well to bear in mind that whatever form of colic occurs, it is always sudden in its attack; and horses are liable to it at all times; in the stable, on the road, or at grass. In the early stage very little occurs to attract attention. The animal, all at once, becomes uneasy from pain, and commences to paw with his fore-feet; soon gets down, and if he be in space sufficient, will commence to roll from side to side, often remaining a few moments on his back, in which posture he seems to obtain temporary relief; sometimes, as quick as thought, he is on his legs again: gives his body a shake, anxiously regards the flanks by turning the head in that direction; when down, again, he goes to perform the same rolling feat. Now and then the patient remains quiet, in a crouching attitude; the limbs being gathered under the body until the distension is so great, or the pains so severe, that he must shift his position, when again we find him rolling, or else standing with the *hind* extremities stretched backwards, † the fore advanced; thus representing the attitude of a horse when urinating. Supposing at this period that there be no flatulency present, yet the respirations are hurried, the pulse wirey, the eyes glassy, and the patient excessively nervous and uncontrollable; the case is then of a spasmodic character.

Should the animal pass flatus, or the abdomen increase in volume, the case is one of flatulency. Then again, in spasmodic colic, the patient has periods of ease, which gradually grow shorter, until he either gets relief or becomes delirious, and soon dies. Either form of the disease may, however, terminate in inflammation of the bowels. The bladder often becomes sympathetically affected, and retention of urine is the result; this can be ascertained by introducing the hand into the *rectum.*

These are some of the principle features of colic. I might go on and describe the symptoms more fully, but time will not permit.

CAUSE OF COLIC.

I shall now offer some brief remarks on the *cause* of colic. If we could only stretch the imagination, so as to take for granted, all the popular causes assigned for the production of colic, then their name would be legion. Some writers inform us that a drink of cold water, when the animal is heated, is the most potent cause; then we must infer that the horses ridden by the Russian Cossacks, (fast fellows,) in a country where cold water is abundant, should be the subjects of colic; but the very reverse is the case; the disease is almost unknown among them.

Previous to the introduction of Cochituate water into the City of Boston, colic occurring among horses, was partly attributed to the *cold, well* water then used; but now they all drink the former, yet colic is just as prevalent, and indeed more so, than at the time referred to.

There are no people that pay more attention to the watering of horses than the English grooms, and it is customary when a horse is taken from his home to a distant race-course, to remain away only a few days, sufficient water is transported with him to last during his stay. Such a dread have English grooms of "*strange water,* as they term it. Now, it is a notorious fact, that the English horse is more subject to bowel affections than those of this country. From this circumstance I infer that bowel affections are hereditary, or in other words a predisposition to such is transmitted from parents to offspring.

I can well remember the time when physicians would not allow a fever patient to taste

* *Meteorization*—a windy state of the abdomen, which takes place suddenly and unexpectedly, as doth the appearance of a meteor in the Heavens.—*Percivall.*

† When a horse assumes this attitude, people are apt to conclude that the subject is laboring under suppression of urine, and then down goes the nitre, gin and rosin. But the fact is, he puts himself in this position for the purpose of pressing on the abdomen, and thus giving it support by means of the rectus muscles.

water; but now they act more in accordance with reason, and allow the sick just what they crave for.

It is not good policy, however, to allow a horse, when performing a journey, a bountiful supply of water, because active exercise somewhat suspends the digestive function, and therefore the water may remain in a portion of the large intestines without undergoing the usual transformation; it then occupies space, and being weighty, may, in the rapid movements of the animal, operate unfavorably in various ways, more particularly on the gut itself; it being pendulous from the spine.

A horse is often brought into the stable in a state of profuse perspiration, and, of course, is somewhat exhausted. Now, it would be decidedly wrong to either feed or water him, until he be rubbed dry, and has rested awhile; for at such times food is just as likely, and I think more so, than water, to operate unfavorably on an exhausted animal.

Many horses, however, even when in this exhausted state, will fill their stomachs with food and water, and yet enjoy immunity from colic. Therefore, should colic occur in a horse after he has had a hard drive, he having partaken of a draught of water, it is rather difficult to decide which of the two, if either, was the cause of the malady. One fact is certain, and that is, the stomach is deranged, and therefore fermentation precedes digestion, hence the gas.

Notwithstanding our best efforts to prevent it, colic will occasionally occur. Green grass, clover, carrots, and turnips, are said to occasion it. Then, again, it appears in stables, where nothing but corn, oats and hay are used. One horse is attacked immediately after a draught of cold water, another has the chill taken off his, yet he is often found in the same predicament. Warm water is the most insipid and nauseating drink that you can offer a horse; and many would prefer to continue thirsty for some time ere they would imbibe it.

Time will not allow me to notice other popular theories regarding the cause of colic, but I shall, in a brief manner, offer a more rational view of the subject.

It is well known by physiologists, and I presume many of you must have observed, that both men and animals inherit peculiar idiocyncrasys: each are predisposed, either through parental defect, temperament, or conformation, to certain forms of disease. This peculiarity, or predisposition is said to lurk in breed, and those conversant with the horse's structure and temperament, can readily determine whether he be predisposed to certain forms of disease or not; for example, a horse predisposed to flatulent colic is often observed to have a capacious belly, voracious appetite, and does not properly masticate his food, and he is not over particular as to the kind of diet, for we often find him devouring, with apparent relish, the filthy straw that has served as bedding. Often he proves to be a "*crib-biter*, (*cribbing* is a defect, either inherited or acquired.)

Ordinarily the salivial fluid is augmented, yet it does not look healthy, it is more like soap-suds, and of a dirty color; the tongue is also foul, and the breath somewhat fœtid. One or more of these peculiarities generally predominate in colicy horses.

I contend, therefore, that some horses are predisposed to colic, and this explains the reason why, the ordinary exciting causes; such as cold water, exposure, fatigue, irritating food and medicine are operative on the system of one horse, and inoperative on that of another. Colic is the heritage of some of the best horses in the world.

Now should you ask, What are the causes of colic? I answer, It is occasioned by predisposing direct and indirect causes, operating conjointly or not. Should you also desire to know, what is the state of the digestive organs at the commencement. I would inform you that their function is either disturbed, or partly suspended.

I shall now speak of the *treatment* of colic.

Treatment of Spasmodic Colic.—Supposing the case to be of purely spasmodic origin, we infer that there is some derangement in the nervous system; for, from the motor nerves muscular action is supposed to emanate. The state of spasm, however, is brought about, through the nerves, of involuntary motion. To act on the nervous system is our first object; because, through it, we operate on the muscular, and hear is the seat of spasm. The remedies are various, among them. I select the following: (*antispasmodic*) —Sulphuric æther, half an ounce; tincture of assafœtida, one ounce; to be given in thin gruel or mucilage. Next, I gave a ball, composed of Barbadoes aloes, four drachms; lobelia seeds, powdered, one drachm; nitrate of potassa, two drachms. An aloetic enema may be given; then immerse a blanket in hot water; wring out a portion of the fluid, and encircle the lions, and secure the blanket there by circingles, or other means.

Next, secure a buffalo, over the blanket, and in this way sweat the animal. At this stage I generally examine the bladder per rectum, and should it be distended with urine, I immediately introduce the catheter and evacuate it. This is the plan to be pursued in the early stage of the malady; beyond this, I cannot, on this occasion, undertake to enlighten you; but invite your attention to what I have to offer, in regard to the treatment of the more common affection, termed, "*flatulent colic.*" I might name a host of remedies that are in use for the cure of colic; some of them very simple, others very dangerous, and a great proportion worse than nothing; but as I propose to be "*practical*" this evening, I would inform you that our principal remedies are *carminitives, stimulants,* and *alkalies.* The aromatic spirit of ammonia is a very excellent preparation for flatulency. It can be given in the proportion of two ounces, diluted with one pint of water. Another equally efficient remedy is, the hypo-sulphite of soda, six drachms to a pint of water. I often combine with the latter, half an ounce of the fluid extract of gentian.

Chlorid of lime is sometimes used, with very good effect, especially when there is a voluminous accumulation of gas within the intestines. It is best to combine it with some diffusable stimulant. My formula is as follows:

Chloride of lime, - - - - - - -	2 drachms.
Water, - - - - - - - - - -	1 pint.
Tincture of Jamacia ginger. - - - - -	1 ounce.

Mix. Drench the horse, and at the end of an hour repeat the dose, if necessary. I give this remedy, supposing that the gas occupying the intestinal cavity, is sulphuretted hydrogen, for which the chloride of the lime has an affinity; the result of such an union is muriatic gas, which reduces the volume of the former (*so the authorities tell us,*) in the proportion of, from nine to one. The muriatic gas is now supposed to be absorbed by the fluids of the stomach and bowels, we then get a weak muriatic acid, termed, "dilute spirit of salt;" with the latter, the lime unites, and the result is, a harmless substance known as the *muriate of lime.* I have been very successful in putting a stop to fermentation, and in absorbing the already accumulated gas within the stomach, by using charcoal and lime water, in the following proportions: Pulverized charcoal, three ounces; lime water, two ounces and a half; to be given in a pint of rain water.

A favorite remedy among Boston teamsters for colic, is a compound of milk, molasses and salaratus, but it is a very unsafe remedy, and often does more harm than good. Besides, in mixing the mess, it undergoes a chemical change; for example, salaratus is an alkali; milk and molasses have an acid base, and when the three are mixed, a recomposition takes place; hence, it is a remedy that cannot be depended on.

The principal objects in the cure of colic, are to restore the tone of the stomach, by means of stimulants and tonics; to arrest fermentation and absorb the gases of the alimentary canal. I shall not undertake to say that the remedies, here alluded to, are the very best; but I have met with remarkable success in their use, I can safely recommend them.

I have an impression that when a horse is the subject of colic, he requires to be treated just as any intelligent physician would treat one of us. There is no necessity to convert his stomach into a "*slop shop;*" the patient should be treated in a rational manner, by the same means and with the same skill as if one of our race were concerned.

I do not like to see an animal trotted, up one street, and down another, (followed by a biped whip in hand, and a crowd of idlers,) when he is the subject of excruciating abdominal pains, and the sweat pouring off him like rain from sheer agony. The custom is decidedly wrong; our reasoning faculties confirm this opinion; and what reason teaches man should endeavor to put in practice.

No practitioner of human medicine dare advise such a course as compelling a man to hop off a bed of sickness, and start on a fast trot, up and down stairs; for, should he so advise, he would very soon entitle himself to a ticket of leave. Should, however, the attack be slight, a little walking exercise does no harm; and if the patient appears disposed to roll, it were better to let him do so on the ground, rather than in a narrow stall.

My usual directions are: Give the patient a *wide* stall and plenty of bedding; let him lie down, tumble about, and rise, as often as he chooses; only watch and see that no accident occurs.

A good wisp of straw vigorously applied to the belly and flanks, and to the limbs, should the horse feel chilly, may do some good; because we thus preserve the equilibrium

of the circulation. Injections are to be given occasionally, and such other treatment adopted as the urgency of the case seems to demand.

I have associated the subject of "*colic*" with that of "*bots,*" because it often happens, that, when a horse is tortured with either one or the other forms of colic which I have named, and has his head turned round anxiously regarding his sides; some persons are very apt to conclude that the subject is "*troubled with the bots,*" and in view of giving the so-called "bots" their "ticket of leave," the animal is compelled to swallow a juvenile apothecary's shop, and as much other stuff as can conveniently be poured down; which is more likely to destroy the horse, than the bots. I must confess that the subject of bots brings me into "deep water," as the saying is; for very many horse-men, and farmers, too, have always, and still entertain the idea that the *bot* is an enemy to the equine race, and is the cause of much inconvenience and torment; and I have found it very difficult, on some occasions, to undeceive men on these matters. I hope, however, on this occasion, to convince some of my audience, that "*bots*" are not so destructive to horses as they are represented to be.

Mr. Bracy Clark, who has paid considerable attention to the subject, informs us that, "Bots, are not, properly speaking, worms, but the larvæ of the gadfly, which deposits its eggs on the horse's coat in such a manner, as that they shall be received into his stomach, and then become bots. When the female fly has become impregnated, and the eggs are sufficiently matured, she seeks among the horses a subject for her purpose, and approaching it on the wing, she holds her body nearly upright in the air, and her tail which is lengthened for the purpose, is carried inwards and upwards. In this way she approaches the part where she designs to deposit the eggs, and suspending herself for a few seconds before it, suddenly darts upon it, and leaves the egg adhering to the hair by means of a glutinous liquor secreted with it. She then leaves the horse at a small distance, and prepares the second egg; and poising herself before the part, deposits it in the same way; the liquor dries, and the egg becomes firmly glued to the hair. This is repeated by various flies, till four or five hundred eggs are sometimes deposited on one horse. They are usually deposited on the legs, side, and back of the shoulder—those parts most disposed to be licked by the animal; in licking, the eggs adhere to the tongue, and are carried into the horse's stomach in the act of swallowing. The bots attach themselves to the horse's stomach, and are sometimes, though less frequently, found in the first intestine. The number varies considerably; sometimes there are not half a dozen, at others they exceed a hundred. They are fixed by the small end to the inner coat of the stomach, to which they attach themselves by means of two hooks."

I shall reason analogically, and therefore propose to enquire into the history, habits, &c., of some of the lower orders of animality; so that you may perhaps, infer that the presence of bots in a horse's stomach is no deviation from the general rule which seems to pervade all creation. In the study of animal physiology, we discover that animals and insects, require the operation of certain forces in order that their peculiar vital properties shall be manifested. They all require food, water, and oxygen: food, for the development of organised tissues; water, to maintain an equilibrium between the solids and fluids; and oxygen, for promoting various changes, uniting some particles for the benefit of the whole fabric, and disengaging others destined for excretion. These have to be obtained under various circumstances. The number of the different species of reptiles known to naturalists is about 1300, and there are at least 160,000 species of insects; among this vast assemblage of animate forms, a great proportion obtain *food, water* and *oxygen*, in a situation, and at a temperature, which is most congenial to each *species;* each one of which, as a race, exhibit great varieties in physical organisation and habits, and hence the necessity for that diversity in geographical distribution which seems to surprise some men. Each species of animal and insect carry about with them, in their own organisation, the fertile embryonic habitation, for successive parasitic development, and all are, to a certain extent, dependent on each other for both food and life. It has been truly said that there "is *life within life.*" Begin with the body of man for example, and you will find that it is infested with thirty-nine distinct species of entozoa; these are not confined to a single location, like the bots, to the digestive cavity of the horse; but some are to be seen in the eye, bronchial glands, kidneys, liver, gall, bladder, intestines, muscles, and even in the blood. There are several other spieces of entophyta, to the number of ten, inhabitants of the skin and mucous surfaces. So that the master can boast of a larger number of living parasites within and about his body, than we have yet been able to find in his servant, the horse. And if the former can carry about in the

living citadel such a myriad of living, active creatures, without inconvenience, and he, being the weaker animal, why should not the horse who is the *stronger*, be able to furnish nutriment for some half dozen bots or more that are occasionally found in his stomach, and be able to perform his 2.40 gait without inconvenience? Some of the inferior orders of creation are the receptacle of a still greater amount of parasites. The grass-hopper, for example, is infested with a species of gordius, a sort of hair worm, which some persons have erroneously supposed to be a transformed horse hair. Several of these coil themselves in the digestive cavity of the former; often penetrating the abdomen, thorax and cranium; their bulk and weight often exceeds that of an ordinary grass-hopper; still you see and hear them, skipping, jumping and chirruping; notwithstanding this immense parasitic mass, just as freely as those not infested. * * * * *

You cannot make medicine act on the external surface of the bot, for it does not absorb fluid—it is impervious. These creatures have been put into muriatic acid, and kept there for a time, without being injured. You may put them into new rum, and keep them for weeks, and on taking them out and exposing them to the sun's rays, they will manifest vitality, And from my own experience, and reasoning from analogy on the general innocuousness of animal parasites, I may safely say that they very seldom do any harm to horses.

I have heard some wonderful stories related of bots burrowing through the coats of the stomach. This, I think, rarely takes place while the horse is alive. That cavity is the home of the bot—its natural habitation; for I know of no other. Here it generally remains, until it is capable of exercising an independent existence. In this situation, the little creature is too comfortably located to burrow through the stomach into a cavity where it might perish for want of food. If the time has arrived for it to vacate its stronghold, instinct teaches it the most safe and expeditious route, which is through the alimentary channel. Turn a horse out to grass in the spring, or give him some green fodder in the stable, and the bots will soon leave him, if they are matured—otherwise they must remain until that period arrives. * * * * *

I contend that the stomach of the horse is the natural habitation of the bot during its minority; and at the proper season, the digestive canal is the useful channel for its introduction into the external world; and if these parasites are ever found in any other situation within a horse's body, they are there by the force of circumstances, owing to disease or rupture of the stomach, or from some morbid condition in the gastric fluids, which arouses a set of involuntary actions, in response to a stimulus. Because, during the whole period of their minority, that is the larveal state—a term which, in the language of entomology applies to the bot from the time of emersion from the egg or nit, up to that period when it vacates the horse and assumes the form of a gad-fly. They are, up to this period, in the same condition as a new-born babe or an idiot—the one in imbibing its mother's milk, and the other performing unnatural antics, appear to lack that train of mental operations which implies knowledge, motive, or the consequences resulting from such actions. I very much doubt if the bot can at any time, by voluntary act, vacate the body of the horse. Reasoning from analogy, I am led to the conclusion that the result is accomplished through their instinctive properties, which are common to many insects and parasites—a perfect adaptation of means to an end—by which they perform a certain set of operations without choice, purpose or intention of their own, yet, in many cases, producing results which man, through the aid of his superior intellect, has not been able to surpass.

Veterinary surgeons have long since discarded the absurd notion, that *bots* are the cause of any pain or suffering to horses. In fact, some of the most distinguished of them assert, that these little creatures, with their rough exterior, are rather beneficial, than otherwise—that by friction and irritation they arouse the sluggishness of the stomach, and thus promote digestion.

Persons unacquainted with these facts, are, therefore, apt to attribute effects, during life, to causes which happen after death, and consequently, the poor horse has to be dosed with all sorts of nostrums.

So popular has been the belief that bots are injurious to horses, and therefore must be expelled at all hazards, that almost all the old works on farriery contained some favorite recipe for their expulsion. Popular opinion, too, has been so much in favor of the theory, that Mr. Percivall thought it his duty, as a public teacher, to make use of the following language:—"You may boldly assert, that bots are in nowise injurious. Still, you cannot persuade the world so, and therefore you must be prepared to meet the com-

plaints of those unbelievers, who will now and then declare that their horses have bots—which must be got rid of. But I know of no medicine that has the power of destroying; and even if we possessed such, I am not sure that we could, even when dead, detach them from the cuticular coat of the stomach to which they are attached by small horns." He recommends a run at grass.

And now, I ask, what connection can possibly exist between the presence of bots in a horse's stomach, and the violent pain he suffers from intestinal diseases. *None;* not the slightest. I once found fifty-six bots in a horse's stomach, that was killed in consequence of having broken his leg. Now, it would be very unreasonable to attribute this accident to the presence of bots.

And it is equally unreasonable to assign *bots* as the cause of an acute disease, which any intelligent surgeon might demonstrate.

Now, gentlemen, if I have not succeeded in redeeming my promise—which was to convince you of the harmless nature of bots—the fault is with me, and I shall have to refer you to the works of Clark and Percivall who are unquestionable authorities on this subject.

In conclusion, permit me to entreat you to protect your horses from that species of quackery which proposes to expel bots, and from those self-styled practitioners who, in order to hide their own ignorance of the nature and seat of disease, thus attempt to deceive you.

Charcoal and Salt for Hogs.—One of the best articles that can be given to swine when confined, is charcoal pulverized, and common salt. Salt and sulphur are also very good articles, and should be constantly supplied. We would not, however, be understood as urging the necessity of keeping these articles continually by them, or introducing them daily into their food. The first is necessary to obviate the bad tendency of certain kinds of aliment, and should be supplied in quantities varying from one pint to two quarts, as often as once or twice a week. Salt should always be introduced as a seasoning in food. When it is not so used, it should be given twice a week, or it may be placed in a box in the stye to which the animals can have access whenever they wish to partake.

Cream Cheese.—Take one quart of very rich cream, a little soured, put it in a linen cloth and tie it as close to the cream as you can. Then hang it up to drain for two days—take it down, and carefully turn it into a clean cloth and hand it up for two more days—then take it down, aed having put a piece of linen on a deep soup-plate, turn your cheese upon it. Cover it over with your linen; keep turning it every day on to a clean plate and clean cloth until it is ripe; which will be in about ten days or a fortnight, or may be longer, as it depends on the heat of the weather. Sprinkle a little salt on the outside, when you turn them. If it is wanted to ripen quick, keep it covered with mint, or nettle leaves. The size made from a quart of cream is most convenient, but if wished larger, they can be made so.

To Preserve Herbs.—All kinds of herbs should be gathered on a dry day, just before or while in blossom. Tie them in bundles, and suspend them in a dry airy place, with the blossoms downwards. When perfectly dry wrap the medicinal ones in paper, and keep them from the air. Pick off the leaves of those which are to be used in cooking, pound and sift them fine, and keep the powder in bottles, corked up tight.

Trees Knawed by Mice.—In your paper, I see several articles about protecting apple trees from mice, &c. The best remedy I know is to paint them with coal tar. J. W. [We have published several different preventives lately, for this purpose, all of which have their advantages in different circumstances—but we have never found anything yet that is cheaper and more effectual than the long tested mode of banking up the stems with earth, about a foot high. One man will do hundreds in a day, and if grass or weeds are not thrown up with the earth, the mice will never approach the trees.]—*Country Gentleman.*

Nobility and gentleness go hand in hand and when I see a young gentleman kind to his mother, and gentle and forbearing to his brothers and sisters, I think he has a noble heart.

"Though it be not in your power," said Marcus Aurelius, "to be a naturalist, a poet, or a mathematician, it is in your power to be a virtuous man, which is the best of all."

NOTICE OF COUNTY SHOWS.

E. W. THOMSON, Esq.,
President of Board of Agriculture, U. C.

Sir,—I have the honor to submit to you the following brief statement of my proceedings since my last report:—

October 9th, I attended by appointment the Exhibition of the Agricultural Society of the County of Wentworth, held at Waterdown. The day was delightfully fine, and the number of visitors very large. Indeed, for miles around, the occasion seemed to be regarded as a general holiday, by the young and old of both sexes. It was evident from the countenances of the people that they were in earnest in the great cause of agricultural improvement, and appreciated the important purposes of these annual competitions.

Not intending in these short notes to enter into any minute analysis or comparison of the Exhibitions which I have witnessed, I am quite justified in saying that the Show at Waterdown was highly creditable to the County of Wentworth in general, and to the people of East Flamborough and its neighborhood in particular. Horses, cattle, and sheep were, as a whole, much above mediocrity, and specimens from each might have been readily selected that would have graced any Exhibition, whether of a Provincial or National character. Hon. Adam Fergusson's herd of short-horns was well represented by a bull and several heifers, which elicited general admiration; there were also a number of other good specimens of the Durham class. Mr. Malloch had a young bull and two heifers just imported from Ireland, which promise to be a valuable acquisition; the animals were in extraordinary good condition, considering they had been landed from the vessel only a fortnight; one heifer was indeed fat, quite fit for the butcher; indicating the strong tendency to thrive and fatten, characteristic of this celebrated breed. Sheep were numerous,—all long woolled, with only an exception or two,—many of them indicating pure breeding, and heavy both in carcass and fleece. The show of pigs was small, including some excellent specimens both of the large and small breeds. The grain and roots were good, indicating care and an improved state of culture. The ladies' department was quite superior, and their handiwork attracted general attention. A few good implements, chiefly manufactured in the neighbourhood, were on exhibition. Nothing indicates more plainly the advancing state of our agriculture than the superior and efficient tools and implements one sees at Shows like this, and produced by country mechanics residing in the surrounding villages. A goodly number of farmers afterwards dined together at the Inn, and several short but spirited addresses were delivered. Mr. O'Reilly, President of the Society, in the chair. The proceedings of the day terminated with an address from myself in the new Grammar School. The prosperous state of this Society is highly creditable to the Directors, and it still continues to enjoy the services of its old and efficient Secretary, Mr. James Wetenhall.

I had the pleasure of spending a couple of days with the Hon. Adam Fergusson, of Woodhill, whose residence commands a much larger portion of the picturesque than ordinarily falls to the lot of Canadian homesteads. Mr. Fergusson's herd of

short-horns is small but choice; and I found him, as heretofore, animated by the same spirit for the advancement of agriculture, which has distinguished him for a great number of years both in Scotland and Canada.

I subsequently attended the Agricultural Show of the Township of Etobicoke, at the Village of Mimico. I had heard much of the flourishing condition of this Society, and was, therefore, prepared to expect something superior, and certainly I found the reality to exceed my anticipation. The large amount of visitors, stock, implements, fruits, and vegetables, much of which was of the best quality, indicated a first-rate County, rather than a Township Show; and the ladies' work, exhibited under a large tent, was both extensive and excellent. The dinner was numerously attended, and the speeches and proceedings were animated. Mr. Fisher, President of the Society, occupied the chair. This Society affords a fine illustration of what may be effected, even within the limits of a Township, by united and zealous co-operation. The spirited competition in the growth of turnips, and the liberal prizes it has given for the same, for the past two years, places the Etobicoke Society among the first and most influential in the Province.

October 24th, I attended, in company with Messrs. R. L. Denison, Hugh Thomson, and others from Toronto, the County of Wellington Show, at Guelph. The amount of live stock was scarcely so large as one might have expected in this celebrated district, but the *quality* was all that could be desired; in no department scarcely was anything to be seen that could be considered absolutely inferior or second-rate. This result has been brought about by the exhibition of the best animals for many years under the auspices of this Society, so that people will not now take anything but what is really good, well knowing that such only have any chance to win a prize. The *quality*, and not the mere quantity, should be principally regarded in these Exhibitions. Mr. Stone, who is now so favorably known to the public as an enterprising importer and breeder, had some beautiful specimens of his select pure bred cattle and sheep; and there were others closely treading upon his heels, and even, in a few instances, exceeding him. It would not be too much to say that in cattle and sheep the Show might vie with any similar one in the mother country, whether we regard the animals imported or bred in the County. The grain was good, but rather small in amount. They have a beneficial practice of holding at Guelph a Seed Wheat Show soon after harvest, and awarding liberal premiums. As no prizes are offered for fall wheat at this general annual Show, little or none is brought forward. The roots were excellent, superior to anything I have seen elsewhere. Turnips of different kinds, particularly Swedes, were not only perfectly pure, but large, well shaped, and sound. The soil of this County must be well adapted to the growth of this root, and the culture skilfully conducted. There being no ladies' department, (except dairy products are considered such, which were excellent), the Exhibition did not attract any large amount of visitors who were not directly interested in agricultural pursuits. Wherever ladies are encouraged to bring out their useful and ornamental productions there is always a larger attendance and apparently greater animation. A large party sat down to dinner in the evening, and several interesting

and instructive addresses were given. This Society owes much of its present prosperity to the long and efficient services of its Secretary, Mr. John Harland.

The next day I proceeded to Stratford, the County Town of Perth, where I had engaged to give a lecture on the science and practice of modern agriculture. Owing to the extreme cold and wetness of the day the attendance at the Court House was small. After the lecture some conversation of a very interesting nature followed; Mr. Smith, the President of the County Society, suggested the desirableness of the Board of Agriculture procuring a collection of the soils, economic minerals, specimens of agricultural products, &c., from all parts of the Province, and to arrange them systematically in a place convenient for inspection. Of the importance of this suggestion there can be no doubt; but nothing of the sort can be accomplished until the Board is provided with suitable and permanent rooms. An agricultural museum is beginning to be felt as a desideratum, which it is hoped will soon be supplied. The weather during the three days I spent in Perth was very unfavorable for making extended observations. Notwithstanding, through the kindness of Messrs. Smith, Stewart Campbell (Secretary of the County Society), and McCulloch, I was enabled to see a considerable portion of the central and southern portion of the County. One cannot travel far here without being struck with the general uniformity of the soil, which, for agricultural purposes, is, with few exceptions, of first quality. A strong clay loam seems to predominate, and near the Thames, as at St. Mary's for instance, limestone, of apparently good quality, may be readily obtained to any extent. Drainage in some places is required, and the general surface of the country, although apparently flat, is in most places sufficiently inclined and broken to admit, without much difficulty, this important means of agricultural improvement. Gravel ridges intersect the County in several directions, and about sixty miles of excellent gravel roads have been made already. The Town of Stratford is favorably situated, being intersected by the Grand Trunk and Buffalo and Huron Railroads, and is rapidly improving. Property is fast advancing here as everywhere else, but as Perth is a newly settled County, having an excellent soil, and now unusual facilities for transportation of produce, it appears to offer peculiar advantages to all classes of settlers, more especially such as have limited means.

October 28th, I attended by appointment the Agricultural Show of the County of Halton, at Milton. The day was fine, and the number of visitors very numerous. In many respects it reminded me of the Wentworth Show. The cause of agriculture appears to be warmly espoused in all the sections of that great tract of country formerly known as the "Gore District." At all events in Halton the farmers, with their wives, sons, and daughters, take a lively interest, as their Annual Exhibition plainly testified, in whatever tends to foster and promote the interests of our native husbandry. I can only say that every department of the Show contained several specimens of merit, and that upon the whole it must be considered highly creditable to the farmers of Halton. The best of the live stock exhibited, will, if carefully managed, soon effect a general improvemeat in the horses and cattle of the County. It is extraordinary what extensive benefits a few good pure bred bulls will confer upon a whole district in the course of three or four years. The grain, roots, and

vegetables generally, considering the unfavorableness of the season for the latter, were better than might have been anticipated, there being several excellent specimens. In consequence of the great crowd of visitors I could not inspect the ladies' work, which embraced an extensive assortment; much of it was thought by those who had an opportunity of examining it to be of excellent quality.

After dinner in the evening I gave an address to a large audience in the Court House, and was followed by Mr. McDougall of the *Agriculturist*, Mr. Clarke, the indefatigable Secretary of the Society, Mr. White, and a number of other gentlemen, whose remarks on the state and improvement of agriculture, and upon the insect destroyers of our wheat crops, were both interesting and important. A meeting of this kind was certainly a rational and improving way of closing the proceedings of an Agricultural Show, and I left the County of Halton with a pleasing recollection of what I saw and heard.

In conclusion I would observe that it must be obvious to all who have opportunities of attending and observing our Agricultural Shows in different parts of the country, that their magnitude in many instances is now such as to require a suitable piece of ground, with permanent fence and convenient buildings, and *more time* to arrange and properly exhibit the various articles which make up the staple of such expositions. County Shows, where there is or ought to be much belonging to the mechanical, manufacturing, and ladies' department, require *two full days* to commence and terminate the business in a systematic and instructive manner. A small charge for admission too would not be felt as a burthen by individuals and would materially improve the pecuniary resources of the Society. I trust these few hints will not be lost sight of by those who are more immediately concerned in the management of these Exhibitions.

Respectfully submitted.

GEO. BUCKLAND.

Toronto, November 24, 1856.

Apple Wine.—Take pure cider made from sound ripe apples as it runs from the press. Put from 40 to 60 pounds of common brown sugar (according to the sweetness desired) into 15 gallons of the cider and let it dissolve; then put the mixture into a clean barrel, and fill the barrel up to within two gallons of being full with clean cider; put the cask in a cool place, leaving the bung out for 48 hours; then put in the bung, with a small vent, until fermentation wholly ceases, and bung it up tight, and in one year the wine will be fit for use. This wine requires no racking; the longer it stands upon the lees the better.

Protecting Dried Fruit from Worms.—Place it in a tin steamer, and set it over a kettle of boiling water; then cover it closely with several folds of flannel or cotton, to prevent the escape of steam. It should remain until thoroughly heated, when it can be put into a cotton or linen bag, tied up tightly, and hung in a cool place. Twice in the season, say in May and July, will be sufficient. I will warrant this to be effectual.—*Country Gentleman.*

Preserving Eggs.—The North-Western Farmer has tried the following method of preserving eggs, and recommends it. Take a sieve, and cover the bottom with eggs; then pour boiling water upon them, sufficient to give them a thorough wetting, permitting the water to pass off through the sieve. Take them out and dry them; then pack them in bran, the small ends down; and your eggs will keep *forever*.

DESCRIPTION OF THE CANADIAN WHEAT INSECT.

To the Editor of the Canadian Agriculturist.

TORONTO. October 7th, 1856.

MY DEAR SIR,—I am sorry to inform you that the caterpillars you gave me, about the latter end of August last, are dead. I account for the failure:—As neither of the two were, at the time, sufficiently fed or properly advanced in the second stage of metamorphosis, hence the change into the chrysalis state could not be effected. To obtain the *imago*, depends principally on the latter change. I have made a few microscopical observations, which may serve to detect the caterpillar when it reappears; and I trust some of your country readers will keep a strict look out for it next summer, and note down the exact season. I am anxious to obtain more specimens, that I may make another effort to procure the *imago*.

The two caterpillars were not of the same color. There was also a slight difference in form: the head of one constricted—segment rings of a russet color. The other had a longer head, but more compressed above; and the color of the segments darker, which may be a sexual character. Both were marked with the same number of black punctures and protuberances; and three longitudinal whitish lines, which proceeded from behind the head to the anus, corresponded. Likewise both specimens were provided with the same number of organs for locomotion; *i.e.* six prolegs, eight on the posterior segments, and two anal legs—making sixteen altogether. They spun a very fine thread, and coiled when touched. I think it is a species of *Tineæ*, and that it changes into the chrysalis on the surface of the earth.

There is a species of the same division found in England, *Tineæ Granella*, Reaumer. Ins. 3 tab. 20. f. 14, 16, the caterpillar is found in granaries, gnawing and gathering the seeds into little heaps. In winter it creeps up the walls. It is naked (without hair), and white; the head brown.

It may be discovered that wheat is not the original food of the larvæ of the Canadian *Tineæ*. Many species of this family are known to be parasitical in their habits.

I remain, my dear Sir, respectfully yours,

WM. COUPER.

NEURALGIC HEADACHE.—The application of towels, wrung out in hot water, to the forehead and temples, is represented to be an efficacious and speedy remedy for headaches arising from neuralgic affections.

BLACKBERRY DIARRHŒA CORDIAL.—The following is said to be not only an excellent and pleasant beverage, but a cure for diarrhœa, &c.

To half a bushel of blackberries, well mashed, add ¼ lb of allspice, 2 oz. cinnamon, 3 oz. cloves. Pulverize well, mix, and boil slowly till properly done. Then strain or squeeze the juice through homespun or flannel, and add to each pint of the juice one pound of loaf sugar. Boil again for some time; take it off, and while cooling, add half a gallon of best cognac brandy. Dose—for an adult, half a gill to a gill; for a child, a teaspoonful or more, according to age.

TO PREVENT FRUIT JELLIES FROM MOULD.—Cover the surface one-fourth of an inch deep with fine pulverized loaf sugar. When thus protected, the jellies will keep for years in good condition, and free from mould.

WHAT A MAN COSTS.—VALUE OF EDUCATION.

In a recent number of *Hunt's Merchants' Magazine*, there is an interesting calculation on the subject of raising and educating *men*. It presents a new and striking argument in favour of education. It is to be regretted that there should be any necessity for using such an argument; but as there are in the world a great many men who measure all things—even their professed religion—by the "almighty dollar," the article will do good. Aside from that, it is one of interest—from its calculation—and will be read with pleasure. We have only room for a brief extract, which goes to show how much a man costs—what he is worth—what is his real money or commercial value—and what per centage an education, if given him, pays on the original investment. Mr. Hunt says:—

"The average cost, with interest, of raising any person to the age of 21, will equal $1,000. This is invested—what is the investment worth? It will cost $100 a year to support him. To this body add a mind, and in what an extraordinary ratio has the person's value been raised! He can now earn, suppose $300 a year—that equals $400 above the value of the idiot, which is to be set down to the credit of mind.

"Now, add education, perfecting him from birth to maturity, and what can he earn? Is $1,000 a year too much to allow? That is $600 more than the uneducated man is allowed; and how highly must we rate the expense of education? It could not average $700, which therefore yields 100 per cent. People usually count the cost of growth and sustenance of the body as part of the expense of education; but this should never be done; a clear distinction should always be made between the expenses to be charged to the body and those to be charged to the mind; and as clear a distinction should be made in case of the credits, for at once some very practical truths would be at once exhibited. Perhaps the following table will present the truth in a conspicuous manner:—

Body costs up to 21 years	$1,000	Body costs after that (per year).....	$100
Mind costs up to 21 years	1,000	Mind gains after that (per year) ...	300
Education up to 21 years.....	700	Education gains after that (per year)	1,000

"It is also to be noticed, that the uneducated man is more valuable in middle age than in advanced years; but the educated man grows more valuable as years increase, so that if he begin life with a sum representing the interest of $10,000, he will find his income to double quite as soon as if his capital were in gold.

"These figures are not fanciful; they are, of course, a certainty given for an uncertainty, and merely for illustration: they may be exchanged for any other to please any caviller: but any fair test of the truth will prove that education will pay more than 100 per cent. upon its cost.

"It would appear, then, that any man who would reckon up his investments, must, to what he has in lands, cattle, implements, &c., add at least $1,000 for every mature child he has raised; and if he has added to the child a good education, he has changed this otherwise unprofitable investment into a fortune of not less than $10,000. Now, every principle of commercial economy would dictate that we should add a little investment if we can thereby save the whole, and much more readily should we do it if we can turn the whole into the most profitable of all investments. And what investment is there which will pay as will brain, mind, and education combined?"

Painting Farm Implements.—A great saving may be made by keeping implements constantly under shelter when not in use. But this is nearly impossible; and besides, many of them must of necessity be exposed, during their employment, to many days of hot sun and occasional showers, It is therefore very important to keep them *well painted*. As a general average, they will last twice as long by the protection of a coat of paint, renewed as it is worn off.

Remedy for Sweeney.—Mr. J. H. Shepherd, of Milo Centre, New York, says that he has found the following remedy for sweeney very effectual, and confidently recommends its trial by others:—"Take equal parts balsam of sulphur and spirits of turpentine. Mix, apply, and hold a hot iron near enough to heat but not to scorch. Apply every other day until a cure is effected—usually from ten days to two weeks. The animal can be worked 'right along' during the treatment."

WOMAN, AND HER TOILS.

The following excellent article we copy from the "Housewife Department" of "The New Jersey Farmer." We hope all good husbandmen, who are *husbands*, will read it and ponder on the lesson therein taught:—

MYSTERIOUS PROVIDENCES.

What a mysterious Providence! say the farmers' wives, as they come together to look for the last time on one of their number; and they glance pityingly on the bereaved husband and the family of children, varying in size, from the tall youth or blooming maiden, down to the little child. Truly, it is a mystery, that she should be taken away in the prime of life, when her children need her watchful care and counsel more than ever before. But let us examine into the life led by most farmers' wives, and see if we can gain a clue to this "Mysterious Providence," which so often leaves the family circle desolate.

A young farmer marries, and for a year or two his wife can do very well without help; but by and by, his work is too much for him alone, and he must have a hand; and one by one, little children increase the family, until the wife's burden is much heavier than when she took it up. But he is just getting a start, and if they want to get rich, (as every body does,) they must economise; so she "gets along" without help. She rises early, milks the cows, gets breakfast, often for several men, dresses the children, washes dishes, skims milk, churns, perhaps, sweeps rooms, makes beds, prepares dinner, "cleans up," snatches an hour to sew, keeping a restless baby quiet meanwhile, gets supper, milks again, puts children to bed, and after they and husband are asleep, resting from their weariness, sits up to sew, that she may save paying a seamstress.

In addition to this daily routine, she does all the washing, ironing, baking, scrubbing, house-cleaning, soap-making, and hog-killing work; it costs so much to hire help. So year after year she toils and drudges, not allowing herself the least opportunity for improving her mind, so that she may be a better guide and counsellor for her children. And very soon her fair face is faded and care-worn, her temper soured and fretful, and herself prostrated now and then by fits of illness, only to resume her wearying labor as soon as her returning strength permits. And thus she yearly becomes less able to bear the burden of her increasing household duties. If the husband is a kind, considerate man, who has been taught to assist his mother in boyhood, he makes her work lighter, by carrying wood and water, amusing the children, and doing numberless little things, which may be trifling in themselves, but are of much importance in the aggregate.

But too many men leave the wife to draw water and carry wood, and if she finds it cut part of the time, she considers herself fortunate; and as for the baby—he thinks it is a woman's place to nurse children, so it frets and cries, or mamma must work with it on her arm, while he reads his paper or talks with his hired men. Well, the farm increases in value and fertility, and his labor in producing for his family becomes lighter, as he is able to hire more help; but it is an old thing, both to himself and his wife, for her to do all the housework, with what little help the elder children, if they are girls, can give her; for if they are boys, they cannot work much for her; as soon as they can use a hoe, they must help father; and so she toils on in the same old fashion.

And when the comfortable new house is built and nicely furnished, and her children are beginning to be a real help to her, *the pale, sickly wife and mother lies down to die!* Truly, her sun goes down at noonday. She has saved, by ceaseless, wearying toil, hundreds of dollars for her husband, and he has lost—what money is powerless to recall—the companion of his youth, the one who has walked beside him through life's most thorny paths.

And friends say it is a "Mysterious Providence!" Just as if God ordained that the mother should be taken from her children when they are most exposed to temptation and danger! Instead of laying it on Providence, let us remember the days spent in toil, when the weak, exhausted frame was suffering from disease, induced perhaps by over-exertion; the hours stolen from needed slumber and devoted to labor; the numberless household duties performed with a fretful infant upon her arm; the immense amount of time spent in cooking over a hot fire, and the many sleepless nights passed in anxious watching over sick children. When we look at the subject in this light, is it so very mysterious that so many women die in their prime?

A HORSE WITH THE HEAVES.

I tried all sorts of heave powders on my patient, with no effect whatever. It is said that in a limestone country this disease is unknown, and lime water was prescribed with no apparent advantage. Some one told me to give the horse ginger, and strange to tell, I found that a table-spoonful given to the "General" with his oats, would cure him for the day, in half an hour after he had eaten it; but on giving it daily the effect soon ceased. It is a jockey's remedy, and will last long enough to swap upon. Finally, I was advised to cut my horse's fodder and give it always wet. I pursued that course carefully, keeping the "General" tied with so short a halter that he could not eat his bedding, giving him chopped hay and meal three times a day, and never more than a bucket of water at a time.

He improved rapidly. I have kept him five years, making him a *factotum*—carriage horse, saddle horse, plow and cart horse—and he bids fair to remain useful for five years to come. Kept in this way, his disease does not lessen his value for speed or labor, a single dollar. When the boys grow careless, and give him dry hay, he informs me of it in a few days by the peculiar cough I have mentioned; but sometimes, for six months together, no indications of disease is visible, and he would pass for a sound horse with the most knowing in such matters. There is no doubt that clover hay, probably because of its dust, often induces the heaves. Stable keepers with us, refuse it altogether for this reason.

Many suppose that the wind of the horse is affected by the heaves, so that fast driving at any time will, as we express it, put him out of breath. With my horse, it is not so.

When the "General" was at the worst, rapid driving, when just from the stable, would increase his difficulty, but a mile or two of moderate exercise would dissipate the symptoms entirely. We have, occasionally, what are called *wind-broken* horses, which are nearly worthless for the want of wind. They can never be driven rapidly without great distress, and frequently give out entirely by a few hours driving. This is thought to be a different disease. The "General's" case is, I suppose, a fair example of the *heaves*.

I have no doubt that regular feeding with chopped and wet fodder, and exclusion of dust from hay fed to other animals in the stable, would render many horses now deemed almost worthless, and which manifestly endure great suffering, equally valuable for most purposes, with those that are sound.—*Indiana Farmer*

EFFECTS OF OPIUM.

It would appear that opium, besides its narcotic principles, possesses the property of sustaining muscular strength, thus enabling those who *moderately* use it, to undergo such continued exertion and fatigue as would cause others to sink. Thus the letter-carriers of India, and those who bear messages, when provided with a small piece of this drug, a bag of rice, and a vessel to draw water, will perform incredible jouneys. The Rajpoots, and other Indian tribes, present opium at their feasts and visits, with the same familiarity that Europeans do their snuff-box. The Tartar couriers, who travel night and day, also make use of it. Travellers in the Ottoman dominions generally take opium in the form of lozenges. Even the horses in the East seem to be sustained by its influence. The Cutchee horseman shares his opium with his flagging steed, by which he becomes invigorated, though apparently wearied out before. It is, therefore, the *abuse* not the *use* of a thing that renders it deleterious.

Very variable are the effects of opium on different individuals; this being most observable in the different races of men. For instance, in the East its exciting influence is more marked than among Europeans. "The Javanese," says Lord Macartney, "under an extraordinary dose of opium, become frantic as well as desperate. They acquire an artificial courage; and when suffering from misfortuue and disappointment, they not only stab the objects of their hate, but sally forth to attack, in like manner, every person they meet, till self-preservation renders it necessary to destroy them. They shout, as they run, *amok*, *amok*; which means, 'kill, kill;' and hence the phrase, 'running a-muck.'"

Captain Beekman was told of a Javanese who ran a-muck in the streets of Batavia, and had killed several people, when he was met by a soldier, who run him through with his pike. But such was the desperation of the infuriated man, that he pressed himself forward on the pike, until he got near enough to stab his adversary with a dagger, when both expired together.—*Johnston's Chemistry of Common Life.*

HAIR SNAKES—SINGULAR PHENOMENA.

A correspondent of the Michigan *Farmer* lately made enquiry, through that journal, concerning the nature and origin of "hair snakes found in his milk pans." Another correspondent,—Mr. Justus Gage, of Cass County, Mich.,—gives some interesting facts on the subject. He says:—

"In relation to an enquiry of M. Bull, of Franklin, in the September number of the *Farmer*, concerning hair snakes which he found in a pan of milk, you say the circumstances 'would seem to indicate that they came there by some accident or freak of nature, which, at this distance, it would be impossible to explain.' Is it not equally difficult to account for the origin of such as 'are found in water during the summer months?'

"There are certain classes of animals, the manner of whose origin, modes of existence, &c., science has not yet satisfactorily ascertained. Hair snakes belong, as yet, to such classes. The *Encyclopedia Britannica*, in an article on hair snakes, does not attempt to unravel the mystery in which the origin of these animals is involved; but contents itself by saying that they abound in pools of water, especially in the north of Europe; that they sometimes infest the bodies of other animals, &c. But what kind of animals they infest, or how they infest them, is not stated.

"In regard to the hair snakes seen by M. Bull, the probability is that they were deposited in the pan of milk by the smaller kind of black crickets, which happened to crawl into the cellar, and accidentally got into the milk. Crickets of both kinds are in the habit of depositing such snakes in brooks and pools of water during the month of August, especially after showers of rain. Any one can satisfy himself in relation to this matter, by throwing crickets into water at a proper season of the year. Whether they are produced by the cricket, or only happen to infest its body for the time being, I have not been able to determine.

"My attention was first called to this matter by Jonathan Carr, Esq., of Springport, Cayuga County, New York, by whom the discovery had been accidentally made. Seeing that my credulity was severely tasked in regard to his statement, he proposed that we should try the experiment, by throwing crickets into water, for the purpose of a full demonstration. After repeated trials, we succeeded in obtaining two snakes of about four inches in length. The next morning, on entering my room, a black cricket of the largest size crawled up the side of the water pail, jumped into the water, lay quiet for a moment, produced a snake of nearly seven inches in length, and then nimbly made its escape over the edge of the pail. My curiosity was greatly excited by what I had seen. The snake was lively and active. I put it into a basin of water for the purpose of further investigation, and then commenced hunting crickets, determined to pursue the investigation until not a shadow of doubt, or any possibility of mistake, could exist concerning this very curious phenomenon. I threw several crickets into water, but without any satisfactory result, and began to despair of further development, when, on, turning over a flat stone, I discovered one of the small kinds of cricket lying on its back, dead, and partially decayed, with a hair snake, three inches in length, coiled up in the cavity of its abdomen. This I took on the point of my knife and put it into the water, when it soon began to show signs of life; but it was too much dried up to be able to uncoil itself.

"On returning to my room, I found a number of children collected, who had discovered my snake, held a consultation over it, and, like a set of little savages as they were, had buried it in the yard. The next day I succeeded in obtaining two snakes, of about six inches in length, which I kept in a basin of water for six weeks; but without making any further discovery as to the nature of the animal. At the close of the day they would coil themselves up together, appearing like a snarl of black thread; but on being placed where the sun could shine upon them next morning, they would wriggle themselves out of the kinks, and swim playfully around the basin. After a time they became less active, and on the approach of cold weather became nearly torpid, and I threw them aside. I have since discovered that these snakes will live a long time in moist earth; and I have found them in the ground, of a greyish color, and sometimes of great length and perfectly white, appearing like a white fibrous root of some vegetable. These, on being placed in tepid water, will soon show signs of life, uncoil themselves

when placed in the sunshine, and kink themselves up again at night, but never become so active as those obtained from crickets.

"I will here observe, in closing this article, that the hair snake, when seen through a magnifying glass, presents an almost exact resemblance to the lamper eel, and, when taken from the water, is equally powerless of locomotion."

The discovery of similar hair-worms in the bodies of grasshoppers, is mentioned by Dr. Dadd, in his interesting lecture "On Colic, Botts, &c.," which the reader will find in the present number of the *Agriculturist.*

CURE OF ITCH IN HALF AN HOUR.

Dr. E. Smith, at a Meeting of the London Medical Society, called attention to an article in the *Gazette Hebdomadaire*, by Dr. Bourguignon, in which is a confirmation of the value of the treatment of itch, in Belgium, by sulphur, combined with lime, in a liquid form. The remedy is prepared by boiling one part of quick lime with two parts of sublimed sulphur, in ten parts of water, until the two former are perfectly united. During the boiling it must be constantly stirred with a piece of wood, and, when the sulphur and lime have combined, the fluid is to be decanted and kept in a well stoppered bottle. A pint of the liquid is sufficient for the cure of several cases. It is sufficient to wash the body well with warm water, and then to rub the liquid into the skin for half an hour. As the fluid evaporates, a layer of sulphur is left upon the skin. During the half hour the acarus is killed, and the patient is cured. It is only needful then to wash the body well, and to use clean clothes. In Belgium, the treatment is introduced by first rubbing the body for half an hour with black soap; but this does dot appear to be necessary The only essential act is that of the careful application of the fluid sulphur. The lime is of no importance in the treatment, except to render the sulphur soluble, and such would probably be the case if potass or soda were employed, which is an improvement upon the mode of application of sulphur in substance with lard, as the more ready absorption of the remedy, and consequently the more certain and quick destruction of the insect, by using sulphur in a fluid form In so disgusting a disease, it must be of great moment to be able to cure it in half an hour.—*Dublin, Med. Press, from Association Med. Jour.*

This might prove very useful in the treatment of skin diseases occurring among horses. Who will try it?

HYDROPHOBIA.

In the course of Dr. Blatchford's paper on hydrophobia, read before the American Medical Association, at its last annual meeting, at Detroit, the following curious facts were reported as taking place in Prussia:—In 1810 there were in that Kingdom 104 deaths from hydrophobia; In 1811, 117; in 1812, 101; in 1813, 85; 1814, 127; in 1815, 79; in 1816, 201; in 1817, 228; in 1818, 260; in 1819, 356—making a total of 1,658 deaths in ten years, in Prussia alone. It is mentioned also as a curious fact, that in Cyprus and Egypt hydrophobia has never been known to occur. It is believed also that the disease is incident to no particular month in the year, as statistics show, on the whole, as many deaths at one month of the year as at any other—there being no real difference between summer and winter. The doctor believed the constitutional irascibility of the dog was the true etiology of canine madness, snd that excision is the only means now known which affords any reasonable hope of successful prevention. The report pronounces as an utter fallacy the general idea that the dog star has anything to do with the origin of virus in the dog, or that summer has any special preponderance over winter in the existence of cases of hydrophobia. The facts submitted, and which had been collected by the Committee, show the following result; Out of 72 cases, 54 were bitten by dogs, 6 by cats, 1 by a raccoon, and 1 by a cow. Out of 62 cases, 4 died the first day, 9 the second, 6 the third, 18 the fourth, 4 the fifth, 2 on each the sixth, seventh and tenth days, and 1 on the twenty-first. That 22 bites occurred in March, April and May; 17 the next quarter; 18 the next, and 22 the last. The average of the time of the sickness was 66 days, but this lengthy average was enchanced by two strongly-marked cases, lasting 365 and 360 respectively. The usual average is 41 days.—*New York Times.*

To Remove Fly Spots.—Dip a camel's-hair brush into spirits of wine, and apply it, to remove fly spots.

STEAM PLOUGHING IN ENGLAND.

It would seem that Boydell's engine, with revolving railway, is about to furnish the long-sought improvement in agriculture—a practicable steam-plough. We have always doubted, and still doubt, the economical application of any locomotive engine power to the cultivation of small farms, and on uneven or hilly soil. But on tolerably even surfaces, and upon extensive fields, such as may be found in England and on the Prairies of the West, there seems no reason to doubt that steam power may be profitably employed.

The following account of some recent experiments with Boydell's Traction Engine, in England, is from the London *Agricultural Gazette*, an authority which may be relied upon for intelligence and honest statements :—

"The trials having been advertised, we attended on Tuesday and Friday, the 16th and 19th inst., and shall present the readers of the *Agricultural Gazette* with a brief account of what came under our observation.

"On Tuesday the engine was trench-ploughing a small field on Steam Farm, with two of Cotgreaves' trench-ploughs, Mr. Cotgreaves himself superintending them. The work was being done about twelve inches deep, and at the rate of five acres per day, or half-an-acre per hour. The engine, to appearance, would have hauled nearly another plough, as it was never working up to its full pressure of steam; but the two ploughs being all that were at command, we had not an opportunity of bringing this to the test of experiment. The quality of the work gave great satisfaction, especially to the market-gardeners of the neighbourhood, some of whom offered to give 30s. per acre for land so trenched, assuring Mr. Middleton—who lets out engines—that a large area of market garden-grounds of the capital could be had at this rate.

"The daily expense of the engine and hands was estimated at about 30s., so that the cost per acre would be 6s.; consequently the profit would be 24s. per acre at the above estimate—equal to £6 per day, or £36 per week.

"On Steam Farm there was also a good deal of ploughing done by the engine, in two large fields, with four of Howard's P. P. ploughs, the depth of the furrow being nine inches, and the rate of ploughing from eight to ten acres per day. The quality of the work was superior—fully equal to what could have been done by four horses in each plough. Both fields were well adapted for traction-engine work, being comparatively level, and of great length.

"On Friday the engine was at work in a large field on Butts' Farm. It was again hauling four common ploughs, ploughing nine inches deep, and at the rate of an acre per hour when timed. The field was still better adapted than the former, being nearly as level, of greater length, and rather lighter in quality of soil. Both fields on Steam Farm, although of a gravelly character, were yet rocky hard in the bottom; but here the soil was more friable and sandy, consequently the ploughs were more easily held—enabling the ploughmen to make far better work than that done by them with horses in the same field.

"The steady, equal draught of the 'steam-horse' deserves especial notice, as it differs widely from that of horses. Accustomed to the latter, we think little about the irregularity of their traction force, when holding the plough behind them, but we have only to examine their mechanism and the ever-varying position of the fulcra (footprints on the grounnd) over which their muscular force acts, and compare them with those (the endless rails) of the traction-engine, to perceive that the difference is great, and wholly in favour of the latter. In point of fact, Howard's P. P. ploughs, after being entered behind the steam-horse, almost went alone, for we saw Mr. Middleton remove his hand from one of them for a considerable distance, and how much further it would have gone cannot be said. The expense of ploughing nine inches deep, with four ploughs, is thus given :—

"An engineman or stoker, at 4s. per day	£0	4	0
A steersman and four ploughmen, at 2s. 6d. per day	0	12	6
Ten cwt. of coal, at 1s. per cwt., per day	0	10	0
Tear and wear, &c., per day.....	0	10	0
Total expenses per day	£1	16	6

"The sum of 36s. 6d. per ten acres would be something less than 3s. 8d. per acre; but say £2 per day and 4s. per acre.

"The value of the work done was estimated at from 20s. to 24s. per acre; say the lowest of these two figures, which would give £10 per day, so that deducting the £2 (the expense of the engine), we would have £8 as the profit per day over our present system; £48 per week; or the prime cost of the engine in some ten weeks' work.

"When the engine was timed it was ploughing fully an acre an hour, but at that time it was going rather over its ordinary pace. In point of fact, the boiler is only calculated to keep up a maximum pressure of 45 lbs. of steam per square inch, and with the most successful stoking it seldom much exceeded this pressure, while it very frequently fell below it. Midland we found it at one time as high as 50 lbs., and at another as low as 35 lbs. We may also mention here, that we had the diameter of the cylinder measured, and found it 6½ inches. Probably at the ordinary pace of the engine it was ploughing at the rate of eight acres per day of ten hours. We insisted very hard, on Tuesday, for a ten hours' trial without intermission; but owing to the urgent demand of visitors, —some of them from the continent of Europe, the East and West Indies, and the United States of ..merica,—to see it trench-plowing, &c., &c., our request was found impracticable on any of the days advertised for public trial.

"At eight acres per day, the expense per acre would be 5s., and the profit per day, £6; per week, £36, over the present system—a profit which would soon pay off the prime cost of an engine. In the provinces the expense of such ploughing would be, on an average, only 16s.; at ten acres this world yield £8, or £6 of daily profit; at eight acres, £6 8s., or £4 8s. of profit, allowing the expense of the engine in each case to remain as before.

"There was no two-horse or six inches deep furrow work done, and therefore we cannot say from experience what the expense of such was; but we may safely conclude that, at ten acres per day, it would not be more than 2s. 6d. per acre; and at eight acres per day, 3s.

"Such are the leading facts which we gleaned from two days spent with the Messrs. Middleton. That they involve a revolution in agriculture no one will deny who comprehends their importance. To those of our readers who have hitherto been opposed to Boydell's steam-horse entering their fields, the above results may appear startling, and even incredible; but to such we say, go and judge for yourselves, and be guided by facts, not opinions. We ourselves hope very soon to witness far more triumphant results in favor of direct traction than the above, for several of our most intelligent and leading agriculturists have traction-engines of an improved construction, and with better implements for tillage, nearly ready to enter the field, than what were used on the above occasion."

Writers for the Press.—We fully endorse the following:—Many practical farmers, who have been taught in the best schools, that of experience—decline to write for the press because they have not received the education of scholars, and do not write in a smooth and elegant style. If they were solicited to contribute to the columns of literary papers, where style often passes for more than thought, this might be a legitimate excuse. But writers for the agricultural press need only two things, neither of which is dependent upon the graces of mere literature: 1st, Something to say; and 2d, A few clear, plain words in which to say it. If our rural friends will bear these two points in mind, they may write to us as often as they have a leasure half hour, and we will stand all consequences. Nay, we solicit them to do so. We dare them to write us out of patience, if they think they can. We challenge them to put more interesting facts in a brief communication than we can publish. We defy them to write in language so plain that we cannot understand it. Let us see, now, which one of them will take up this gauntlet first.

Important if True.—To *secure from cattle, male or female progeny at will.*—According to an article in the Annals of the Luxemburg Agricultural Society, communicated by a Belgian farmer, a heifer calf is invariably produced when the cow is put to bull before milking, and a male calf when the cow is put to bull just after she has been thoroughly milked. The author of this statement claims to have confirmed its accuracy by four years experience, and asserts that the plan has succeeded beyond all expectation. Cows, which previously had borne only male calves, and that for four or five years, gave heifer calves by the above treatment. Give it a trial.—Bakewell.

Weeds.—"A lady asked her gardner why the weeds always outgrew and covered up the flowers.

Madam, answered he, the soil is the mother of the weeds, but only step-mother of the flowers."

The seeds of weeds in almost any ground, especially that not cleanly cultivated, are to be counted by millions. Every piece of soil at least to the depth it is usually cultivated has, although invisible to the eye, a quantity of seeds ready to germinate as soon as they are brought into sufficient proximity to the atmosphere. Besides quantity they have another important advantage over seed sown to produce a crop, and that is priority of sowing. Lying dormant in the soil for a longer or shorter period, they are already charged with water, and most likely brought from the bottom to the top, feel at once the vivifying influence of air and warmeth, spring into growth as if by magic. Soaking the small kinds of seeds in water a few hours before sowing, would assist them in the battle of life with their numerous enemies, but the true way is never to let a weed grow seed if you can help it. In time this will work a cure.—E. S.

Inventor as well as Artist.—The Florence correspondent of the Newark *Daily Advertiser*, under date of Sept. 5th, says:—"Our countryman, Powers, whom Mechanics have never forgiven for his success in Art, is about to appease her with a new tool, which promises to supercede altogether the present *file*, by doing all its work easier, better, and cheaper. This instrument, originally invented to facilitate his operations in sculpture, has now been adopted to all the uses of the file in metals, ivory, bone wood, leathers, &c., and will, moreover, take the place of the greater in the kitchen. The inventor has devised a compact machine for producing it in great numbers with the least possible expense, and when the castings now in progress are completed, it will be brought into use —doubtless to the great profit of all parties."

Carefully preserve the fallen leaves of trees, and procure as many as you can; when rotted into mold, the produce is invaluable.

Comparative Value of Timber.—A seventy-four gun ship will require the oak timber of 75 acres; but will not require more than the timber of 10 acres of larch.—*Transactions of the Highland Society.*

Hints on Winter Potatoes.—If it is desired to have potatoes in the spring as fresh and mealy as in October, they must be preserved by making a layer of potatoes, then of dirt, filling all the crevices, and so alternately until you have secured them all. If you will try this for once you will ever after adopt it as the best method of keeping potatoes fresh and good. The idea of tumbling potatoes into a cellar, where the mercury ranges from 45 to 60 deg., and expect to have them fresh and good, is not a correct one. Potatoes grow in the dirt and are best preserved in it. But carrots, parsnips, rutabagas, are also much better kept by packing them in dirt. The dirt for potatoes and other roots and tubers should be about as moist as it should be to grow them to advantage, and if sandy in its composition, so much the better.

Cabbage.—Cabbage is best kept by digging a trench in the cellar, and setting them out as if to grow. In this way, small heads will sometimes increase in size, and all will be kept without wilting.

Celery should be carefully taken from the trenches and packed in boxes with dirt or left out upon the cellar bottom; let the earth be moist, and not too wet or dry. If left out in the trenches during the winter and covered, it often is destroyed by the frost and unfit for use.

Strawberry Plants that have been late set should be protected from severe frosts by a slight covering of straw, or litter, or, what is better, a coating of leaves, putting on sticks or pieces of boards to prevent them from being blown off.

Currant Bushes and gooseberries may have a barrow full of chip manure put around each one, and in the spring it can be spread over the ground as a mulching, and to keep down weeds and grass.

The Golden Drop Wheat.—This wheat, taken from the State of Ohio to New York, is attracting attention in that State. It is recommended because it is less liable to the midge than other kinds are.

Guinea Fowls.—It is said that rats will not live on the same premises with guinea fowls. If so, let these fowls be introduced—notwithstanding their unearthly screaming.—*Ohio Farmer.*

At a meeting of the Wool Growers, in Cleveland, it was resolved to recommend the following compound for marking sheep:—*Compound Oil, or Sheep Coating.*—To one gallon of lard oil, put one pound sulphur and one-fourth pound tobacco or snuff; heat the same thoroughly, and add one-half pint tar; the whole strained, and settled, and it is fit for use.

Salts for Stables.—If a compound of gypsum and sulphate of magnesia be used on the floor of stables, it will absolve the moisture and ammonia, and keep the stable dry, and free from offensive smell. The compound salt, after it has absorbed all the moisture possible, is removed to be used for manure, and fresh salts applied in the same way. This is an excellent plan for keeping stables dry and healthy.

Considerations Regarding the Health of a Fast Horse.—The health of a *fas* horse depends on the integrity of the heart and lungs. A slight deviation from health, in either organ, may prove of little consequence to the horse of *slow* work, but in a *fast* one it is a serious impediment to trot, or gallop. Therefore, when purchasing a *fast* horse, the purchaser should have him examined by a vetrinary surgeon.

EDITORIAL MISCELLANY.

Notice.—We must urge upon the Officers of the Agricultural Society who are indebted to us to remit the amount of their account immediately. We have with this number completed our contract, and we trust that they will not hesitate in fulfilling theirs. The amount due by each Society is not sufficient to cause delay, and if the money be not forthcoming, it will in most cases be owing to negligence on the part of the Officers. We feel grateful for the patronage bestowed upon us, and tender our thanks to the many friends who have labored to encourage our efforts.

Dioscorea Batatas (Chinese Potato.)—We have received letters from two or three parties who have grown this new esculent during the last year, and who report favorably of it. In all the cases we have heard of, the plant has not had fair play, having been set out late in the season. We have strong doubts that this new root will be able to *root out* the much-loved and universal potato. The accounts of its culture in the United States are not generally favorable; and in Canada it seems only to have attained the thickness of a "pipe stem"—the words used by our correspondents, in different parts of the Province, to describe its appearance. We hope further trials will be made next year, and that the sets will be put out early. We shall publish one or both of the letters received, in the Number for Jan.

A FEW WORDS TO AGENTS AND FRIENDS.

As this Number concludes the Volume, and is the last our Subscribers will receive unless they re-order the *Agriculturist*, we respectfully ask them to continue their patronage.. Unless they deem the paper unworthy of support, we shall expect our agricultural friends, especially, to take increased interest in its success. We think our efforts deserve encouragement, for we *know* that they have resulted in great benefit to Canadian Agriculture. We hope, by making increased exertions during the next year, to merit the assistance of all true friends of our country.

If asked how that assistance can be rendered, we answer,—in two ways. First, by inducing as many of your neighbours as possible to become subscribers; and, secondly, by contributing interesting facts to the *Agriculturist*, in the shape of correspondence. We are happy to state, that the number of our intelligent correspondents is greater than at any former period. We consider this the most valuable feature of the paper.

Let every subscriber, then, renew his own subscription, and persuade at least one of his neighbours to join him, and we promise a greatly improved volume next year. For terms, see first page.

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